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ABSTRACT

This final report provides an evaluation of the Family Matters program, an experimental program building on family strengths and local resources which was offered for an average of 24 months to 160 families in 10 Syracuse (New York) neighborhoods. Chapter 1 provides a conceptual overview and program description. Chapter 2 describes the research methodology and includes a demographic comparison of program and control families. In chapter 3, attention is focused upon the influence of program participation on children's performance in first grade. Chapter 5 expands this focus to include possible relations among school outcomes, parental perceptions of self, and parent-child activities. Home-school communications is the area of interest in chapter 4 and chapter 6 concerns personal social networks. In chapter 7, network relations to activities, perceptions, and school outcomes are examined, as are the relations between perceptions and home-school communications. Chapter 8 considers questions focusing on program-influenced changes in family ecology affecting the behavior of children; causal links between program inputs and child outcomes; and differences in effects and processes across family types. Attention then shifts to a number of family-support related themes arising from the answers to these questions. (RH)

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FAMILY MATTERS: EVALUATION OF THE PARENTAL EMPOWERMENT PROGRAM

Moncrieff Cochran
Charles R. Henderson, Jr.

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A Final Report to the National Institute of Education

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The Comparative Ecology of Human Development Project
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Ithaca, New York 14853

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The Comparative Ecology of Human Development Project is associated with a larger research effort, the International Group for Comparative Human Ecology. The five countries that have participated in this research group are Germany, Israel, Sweden, the United States, and Wales. The scientific leadership has been provided by Rudolf Fisch and Kurt Luscher (Germany), Sophie Kav-Venaki and Ron Shouval (Israel), Bengt-Erik Andersson and Lars Gunnarsson (Sweden), Jill Lewis and Ronald Davie (Wales), and Urie Bronfenbrenner, Moncrieff Cochran, William Cross, and Charles Henderson (U.S.A.). The members of this group have worked cooperatively on concepts, instruments, research methods, and cross-cultural comparison of data related to the ecology of families with young children.

A major contribution to this report was made by Liz Kiely, including computer analysis, other technical assistance, and help in preparing the manuscript. Jeanie MacDonough had the central role in the development of the school outcome measures. Ann Bell and Sam Morrie also assisted in the analysis of data. The word processing of the many drafts of the manuscript was done by Vicki Griffin. The report has benefited from discussions with Urie Bronfenbrenner, William E. Cross, Jr., and Zorika Petic Henderson. The authors also acknowledge the contributions to the project of the many students and staff members who have worked in the program and research since the inception of the project in 1976. Finally, a particular note of thanks is owed to our NIE program officer, Oliver Moles, for his substantive and administrative guidance.

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APPENDIX:
Data Collection Instruments (bound separately)

CHAPTER I

CONCEPTUAL OVERVIEW AND PROGRAM DESCRIPTION

Moncrieff Cochran

> Today we acknowledge that the massive alteration of the natural environment made possible by modern technology and industrialization can destroy the physical ecology essential to life itself. We have yet to recognize that this same awesome process now has its analogue in the social realm as well, that the unthinking exercise of massive technological power, and an unquestioning acquiescence to the demands of industrialization can unleash social forces which, if left unbridled, can destroy the human ecology -- the social fabric that nurtures and sustains our capacity to live and work together effectively and to raise children to become competent and compassionate members of society (Bronfenbrenner, 1981, p. 38).

In his article "Children and Families: 1984," Urie Bronfenbrenner refers to George Orwell's prophesy that free Western society and its basic institutions, including the family, would be destroyed by the year 1984. He argues that while Orwell may have picked the right year and outcome, he was wrong in attributing that outcome to human efficiency rather than ineptitude. Bronfenbrenner sees the erosion of the power of the family and the childrearing system as a product of public indifference, and he feels that we are failing to come to terms with some hard realities. The research described in this final report to the National Institute of Education, and the parental empowerment program assessed by the research, were conducted in an attempt to confront some of those realities.

The Family Matters Project was established in 1976 with support from a variety of funding sources to study the "capacity of urban American environments to serve as support systems to parents and other adults directly involved in the care, upbringing, and education of children" (Bronfenbrenner and Cochran, 1976). To conduct such a study we developed an experimental program building on family strengths and local resources, delivered the program to 160 families with young children, and evaluated its impact within the context of existing formal and informal support systems as they currently affect families with preschool children. The program was designed as an alternative to the "deficit model" characterizing most social programs in American society. Trained neighborhood workers were made available to families across the socioeconomic spectrum, to provide child, family, and community-related information through home visits and group meetings. This process was formalized in an approach that we now refer to as parental empowerment.

Prior to the launching of the parental empowerment program, we gathered demographic data, perceptions and descriptions of the neighborhood and the world of work, personal social networks, perceptions of family members, and descriptions of the child's daily activities from the parents of 276 families living in Syracuse, New York (160 in the program, 116 as controls). These data constituted the baseline phase of an evaluation strategy designed to provide information about the impact of the Family Matters program upon the performance of children in school. Findings drawn from these data were reported to the National Institute of Education in two reports, titled "Contexts for Childrearing" (Cochran, Bronfenbrenner, Cross, Henderson, Weiss, and Campbell, 1981) and "The Ecology of Urban Family Life" (Cochran and Henderson, 1982), and since then, the program has been completed and follow-up data collected. The measures used for collection of follow-up data paralleled those used at baseline, but also included additional information about children's school performance and contact between home and school. This final report to NIE provides an evaluation of the Family Matters program, based upon both changes in the ecology of family life over time and a comparison of school-related indicators at follow-up.

As a prelude to the consideration of how this evaluation was organized and what we have learned from it, the reader needs a basic understanding of our ecological orientation and the nature of the intervention program itself. The rest of Chapter I provides this background information.

1.1 THE ECOLOGICAL PERSPECTIVE

Detailed discussions of the project's conceptual framework, supported by literature reviews, have been presented elsewhere (Bronfenbrenner and Cochran, 1976; Cross et al., 1977). In this introduction, we review only those concepts underlying the project that provide the basis for the analyses to follow.

The ecological perspective takes as its starting point the view that human behavior is explained not only by the influences associated with the immediate setting containing the developing child (i.e., home, school classroom, etc.), but also those external settings that have an indirect impact on the child through their effects upon the mental health and general well-being of their parents (for example, the legal system, welfare system, workplace). Thus, growth is conceived as a series of encounters across as well as within ecological systems that both include and are external to the home environment. One such encounter, the transition from home to school, is a major event in the life of a child and was one of the major focuses of our experimental program. For the young adult, there is the transition from school to full-time employment or homemaking. Later on, transitions such as that from full-time employment to retirement are experienced.

Although the ecological framework includes a number of systems through which human behavior may be influenced (mass media, education, employment, etc.), one system has characteristics with the potential to mediate the effect of external forces on the parent-child relationship. The personal social network provides parents with social links to others outside the home who can provide a variety of supportive services to both parent and child (Cochran and Brassard, 1979). These relationships may serve as bridges to other major ecological contexts, like the school and the world of work. Because it can serve so many functions for parent and child, the social network has a prominent place in our conceptual model and receives separate attention in this evaluation.

In viewing the developing person across time and space, the focus of the ecological perspective is not only on the behavior of that person but also on the perceptions, behavior, and attitudes of key people in the environment as they affect and are affected by the individual in question. Thus, the ecological approach places a premium on reciprocity, systems analysis, life course development, and, by implication, the value of longitudinal studies.

Because recent research has pointed to the possibility that laboratory-based studies of human behavior produce results that may not be replicable in natural settings, those researchers utilizing the ecological perspective also stress the importance of collecting data in surroundings familiar to the subject, using methods that provide subjects with considerable control over the research situation. In the case of the Family Matters project, these methods have consisted primarily of open-ended interviews.

While the forces affecting the lives of most children appear on the surface to be similar, the characteristics, quality of life, and dynamics of those forces can differ markedly as a consequence of such factors as race, income, family structure, ethnicity, and culture. Because families in the same neighborhood tend to be similar in race, socioeconomic status, family structure, and even maternal employment patterns, the neighborhood as a concept takes on special importance from the ecological perspective (Bronfenbrenner, 1980). From this vantage point, the neighborhood becomes a major locus for what we call an ecological niche. A child's ecological niche is defined by the immediate setting containing the child (home, local park, nursery school classroom), the interconnections among those settings, and the major institutions indirectly affecting the child (parent's workplace, welfare system, school board). Certain niches occur more frequently than others in American society, and so characterize our culture. We have systematically sampled a number of these modal niches, and the analyses reported in this document reflect that sampling strategy.

One other concept that has greatly influenced the kinds of data gathered in this research project is ecological validity. Central to the concept of ecological validity is knowledge of the subject's definition of the situation, for without such knowledge the researcher has no way of knowing whether the subject is experiencing the environment in the way it is perceived by the researchers (Bronfenbrenner, 1979). Accordingly, in this research we rely heavily upon parents' perceptions of the worlds inside and beyond their families, believing that by combining these perceptions with "objective" information also related to these worlds, we can understand what motivations and constraints determine the ways that parents living in differing ecological niches organize their lives and the lives of their children.

Our interest in the ecological perspective is not purely academic, but serves as a means for better understanding human development. A definition of human development from this perspective is therefore in order. It is drawn from Urie Bronfenbrenner's book, The Ecology of Human Development (1979).

> Human development is the process through which the growing person acquires a more extended, differentiated, and valid conception of the ecological environment, and becomes motivated and able to engage in activities that reveal the properties of, sustain, or restructure that environment at levels of similar or greater complexity in form and content.

1.2 THE FAMILY MATTERS PROGRAM: PARENTAL EMPOWERMENT

Many aspects of the ecological perspective could be expected to shape any family support program designed with that orientation in mind. One would expect, for instance, that such a program would pay attention to, and even emphasize, systems outside an individual's psychic processes. Given this perspective, there should be special appreciation for the roles played by parents in mediating the influences of those larger systems on their child's development. The emphasis on modal ecological niches suggests a program delivered to a variety of kinds of families, and flexible enough to accomodate differing expectations and needs. The phenomenological orientation might translate into particular concern in programming for the parents' definitions of appropriate subject matter and developmental goals. These theoretical starting points did influence the goals and design of the Family Matters program, and the family supportive process that evolved came to be known (largely in retrospect) as the parental empowerment process. The dimensions of that program have been presented in detail elsewhere (Cochran and Woolever, 1983; Bø, 1979; Mindick and Boyd, 1982; Mindick, 1980). Here we shall limit ourselves to a review of the basic assumptions underlying the program, its goals, and the processes undergone in order to achieve those goals.

1.2.1 Assumptions

Five assumptions beyond those implicit in our ecological perspective had discernible impact upon the goals and design of the Family Matters program. First we assumed that all families have some strengths. This conviction was based upon our experiences with parents and children over the years, through in-depth involvement in this country with Head Start and day care programs, and abroad with a variety of programs designed to support families (day care, parental leaves, child allowances). We were aware that this assumption ran counter to the deficit perspective, which is one of the basic tenets of service provision in the United States (Bronfenbrenner, 1979; Grubb and Lazerson, 1982; Sutherland, 1983). From this deficiency perspective has come the conviction that one must clearly demonstrate inadequacy or incompetence before becoming eligible for community-based, family-focused programs. In programs as diverse as Aid to Families with Dependent Children, public day-care subsidy, and job training (CETA), the client has been required to prove that he or she cannot support the family, before assistance becomes available. This perspective has led, in turn, to the "blame the victim" syndrome (Ryan, 1971), in which the poor or unemployed person is viewed as the instigator of the circumstances that he or she is enduring.

A second assumption central to our program approach was that much of the most valid and useful knowledge about the rearing of children is held by the people -- across generations, in networks, and ethnic and cultural traditions -- rather than in the heads or books of college professors or other "experts" (Berger and Neuhaus, 1977; Ehrenreich and English, 1979). We believed the fundamental body of knowledge needed to raise children is firmly rooted in the collective consciousness of parents. This did not mean that individuals necessarily knew all they needed to know in order to raise children successfully. We were convinced, however, that a given parent knew more about her or his child than anyone outside the family, except perhaps a close relative or friend, and that in this sense parents were experts and should be so treated.

The third assumption underlying program development was that a variety of family forms are not only in operation but also are legitimate, and could promote the development of healthy children and adults. A growing body of evidence (Kriesberg, 1970; Hoffman,

1974) was beginning to show that it wasn't whether a parent is married or single, or working outside or inside the home, or of a particular race, that determined the capacity to rear a child successfully. The determining factor appeared to be none of these personal or family characteristics *per se*, but rather a question of the resources that parents could marshal and bring to bear upon the child-rearing process. Thus one very important goal for this research was to understand better what really constitutes "resources," and how different types of supports and stresses interact to make parenting easier or more difficult.

Just as mothers can contribute to the strength of the family unit through work for pay outside the home, so fathers can help by playing an active role in activities with the child and in household tasks. This fourth assumption was buttressed by recent research documenting the contribution made by fathers to child development (Lamb, 1976).

The fifth assumption underlying development of the program was an extension of several already mentioned: that cultural differences are both valid and valuable. We assumed that families have strengths, and that if the parental knowledge that is the basis for those strengths is rooted in historical and social ties and in the rituals and traditions associated with those ties, then there must be value in the cultural and ethnic heritages that embrace those traditions and rituals. Thus the challenge became to bring the strength in diversity to bear upon the process of supporting families without losing sight of the universal themes guiding the effort.

1.2.2 Goals

The goals of the program were all related broadly to the parenting role, and ranged, on a parent-involvement continuum, from simple engagement and awareness to more active initiation and follow-through. In the first instance, the aim was to find ways to recognize parents as experts, based upon our assumption of strengths and special expertise in parents and our awareness of the systematic ways in which such recognition is provided to parents in other cultures (Kamerman and Kahn, 1981). Another goal was to exchange information with family members about children, the neighborhood, community services, schools, and work. Here we were responding to the body of literature (Caplan, 1974; Sarason et al., 1977) identifying resource exchange as a key to the maintenance of mentally healthy communities. The emphasis on the exchange, rather than the dispensing of such information, was a reaction to our aversion to the deficit approach.

Reinforcement of and encouragement for parent-child activities was a third goal of the program, and this priority stemmed from the recommendations of those reviewing the early education programs of the 1960s and early 70s, who concluded that active involvement of parents in the learning of children was a key to success (Bronfenbrenner, 1974; Bronfenbrenner and Cochran, 1976; Florin and Dokecki, 1983). A fourth goal involved social exchange beyond rather than within the immediate family: the exchange of informal resources like babysitting, child-rearing advice, and emotional support with neighbors and other friends. This informal exchange process was distinguished from the information and referral process more commonly associated with formal agencies and community organizations (Stack, 1974; Cochran and Brassard, 1979).[1] Finally, we wished to facilitate concerted action by program participants on behalf of their children, where those parents deemed such action appropriate. A neighborhood-based community development process was envisioned, in which needs assessments carried out by the parents of young children would lead to the identification of issues of common concern and to a change in efforts related to those issues.

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[1] Our neighborhood workers did provide referrals to other agencies and organizations, and received training for that purpose. This information and referral effort was not, however, identified initially as a special goal of the program.

1.2.3 Implementation Strategies

The program was offered to 160 families in 10 different Syracuse neighborhoods. Details of the sampling process are provided in Chapter 2.[2] Initially, two separate mechanisms were used to involve families in activities related to their children. One, a home-visiting approach, was aimed at individual families and made available to all participating families in half of the program neighborhoods. Families in the other five neighborhoods were asked to become involved in group activities with clusters of other Family Matters families in their own neighborhoods in an effort to emphasize mutual support and cooperative action, with family dynamics and the parent-child dyad as a secondary (although still explicitly acknowledged) focus. While various methods were used to encourage participation by eligible families (cards and letters, home visits, telephone calls, newsletters), attendence was not required, and the participants themselves ultimately determined their own individual levels of participation. (Chapter 2 of this report includes a section addressing the issue of participation.) Families were involved with program activities for an average of 24 months, and the program itself came to a close early in the summer, prior to first-grade entry for most of the target children included in the study.

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[2] Prior to implementation in these 10 "main study" neighborhoods, the program was pretested with 36 families in 3 pilot neighborhoods. This pilot effort was funded by the Mott Foundation, and is described in detail in our final report to the foundation (Cochran, 1982).

Our home-visitor and clustering approaches reflected the assumptions described earlier and were designed to address specific program goals. Those two approaches, and the factors that led to combining the two, are described below in greater detail.

Activity Home Visits--Our home- and family-focused strategy took the form of home visits with parents and their children designed to give recognition to the parenting role, reinforcement and enrichment of parent-child activities, and shared information about child care and community services. Paraprofessionals hired from the Syracuse community were trained to exchange information about childrearing with parents and, when appropriate, to provide examples of parent-child activities geared to the developmental age of the child. The starting point was to be based on the orientation that the parents were experts about their own children, and so early home visits were spent learning the parents' view of the child and seeking out examples of activities that were already being carried out with the child and defined by the parent as important for the child's development. While these interactions between worker and parent involved both participants in the process of defining success and importance, every effort was made to emphasize the parents' definition whenever possible.

Once parents began to sense that the workers were serious in valuing the parental point of view, they identified for us a wide variety of activities that they were doing with their children that they felt made a difference both to parent and child. Our workers brought activity examples back to the office, wrote them up in a standard format, and returned them to the parent along with a request that other project workers be permitted to share the activity idea with other families in the program. This process accomplished two goals: first, it further recognized the parent as important and productive, and second, it was a way of gathering parent-child activity information from parents for parents, rather than relying upon the "professional-as-expert" model, which many of our parents had come to expect from outside agents.

As time passed and a strong trust relationship developed between home visitor and family, some parents began to ask for information beyond parent-child activities. Those requests were of three general sorts: information about child development ("Is my child developing normally?"), suggestions regarding where to turn for resources to address needs not directly related to parenting (landlord difficulties, marital discord, trouble getting food stamps, etc.), and a list of the other families in the neighborhood belonging to the Family Matters project and receiving home visits. We provided basic child development and childrearing information to families in fact-sheet form from the local Cooperative Extension office. For basic needs like housing, employment, legal assistance, and food, we tried to make referrals to other local agencies and organizations in as personalized a fashion as possible. The requests for information about other Family Matters families stimulated us to merge our two implementation strategies (see below).

Clusters and Groups--The goals specific to this linking strategy have been to reduce feelings of isolation by bringing families together at the neighborhood level, to encourage the sharing of information and informally available resources among families, and, when parents voiced a need to have changes made in the neighborhood, to facilitate action in pursuit of those changes. In this second approach we stressed the value of clusters and groups of families, rather than the individual family. The social systems of special interest were those natural helping networks of neighbors, relatives, and friends upon whom many families depend for information and a wide variety of essential services (Tolsdorf, 1976; Collins and Pancoast, 1976; Killilea, 1976; Cochran & Brassard, 1979; Gourash, 1978).

The initial home visits in the five cluster-building neighborhoods were limited to a process in which worker and family got to know each other and the worker could learn from parents how they felt about the neighborhood as a place to bring up children. After this relatively brief initial period of familiarization with individual families, the worker set out to arrange a first group meeting, the purpose of which was to introduce neighboring families to one another in a friendly and supportive atmosphere and to begin to get a sense from the group of what changes in the neighborhood might contribute to making life easier for families with children living there. Child care was provided at all Family Matters gatherings, and parents were encouraged to bring their children with them. There was always time for parents to socialize with one another, and the worker/facilitator also looked for ways to encourage participants to turn to each other as resources outside the regular group.

Program Evolution--Our ecological, systems-oriented approach to development had led us to expect that home visits focused initially upon self-esteem and parent-child activities could be combined with linking and group-building activities at the network and neighborhood levels to produce a program more likely to involve parents than either the home visits or the group-building alone. We had predicted in our original grant proposal (Bronfenbrenner and Cochran, 1976) that the combination would be more attractive to parents than either of its parts. Two early findings seemed to confirm that hypothesis. One has already been mentioned. Once certain families became comfortable with home visiting they began to express an interest in meeting neighbors involved with the program. This pressure to move beyond the ecological limits of the immediate family implied by the home-visiting approach placed workers in the difficult position of having to resist the constructive initiatives of parents in order to prevent contamination with the cluster-building approach. The second indication that the combination might work better than individual elements was negative, and manifested itself in the cluster-building neighborhoods. Only about half of the invited families in those neighborhoods could be coaxed out of their homes and into group activities.

Based upon these two sources of programmatic tension -- active initiation by some home-visited parents and passive resistance by parents uninterested in neighborhood clustering -- we decided after nine months to merge the two approaches. Workers in the group-oriented neighborhoods began to make themselves available as often as every two weeks for home visits focused initially upon parent-child activites, and those who had been doing only home visits started to facilitate the formation of neighborhood groups and clusters.

One consequence of access to both components of the newly integrated program was an increase in overall program participation. Initially this took the form primarily of more parent-child-activity home visits, mainly to families who previously had been offered only the neighborhood linking alternative. We viewed this development as an indication that because a significant number of families felt alienated from their neighbors, a trust-building process conducted within the security of their own homes was required before they would seriously consider venturing out into neighborhood oriented cluster group activities. With more time came involvement by more families in clusters and groups, and some participated simultaneously in both home visiting and neighborhood-based group activities.

The Home-School Transition--As the children associated with the program grew older and approached the age of entry into kindergarten and first grade, we placed increased emphasis on programming related to the transition from home to school. These activities, prepared for delivery in both home-visiting and cluster-grouping formats, focused on topics like the values of home and school, evaluating kindergarten and first grade classrooms, preparing for a parent-teacher conference, understanding the child's report card, and parent-child activities for school readiness. The emphasis in each of the activities was always on the parent as the most important adult in the life of the developing child.[3]

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[3] At no time did staff members from the Family Matters program directly involve school teachers or other school personnel in program activities. A request to include such efforts in the program, made to the National Institute of Education during contract renegotiations in August-September 1980, was denied on the grounds that any effects of work with teachers would be confounded with those of work with parents.

1.3 THE ORGANIZATION OF THIS REPORT

The next chapter of this report lays out in some detail our research design, sample selection process and sample characteristics. The data-collection instruments are described, as are measures of program participation and analytic methods. Included as a technical note to the chapter is a demographic comparison of program and control families at the time of baseline and follow-up data collection.

In Chapter 3, attention is focused upon the child's performance in first grade as it has been directly affected by participation in the Family Matters program. Chapter 5 expands this focus to include possible relations among school outcomes, parental perceptions of self, and parent-child activities, again as a function of involvement with the program.

Home-school communications is the arena of interest in Chapter 4. The reported use of personal notes, telephone calls, and parent-teacher conferences is considered from the perspectives of both parent and teacher, with an emphasis on how these frequencies were affected by program involvement.

The subject matter in Chapter 6 is personal social networks. Changes in size, composition, and content of networks during the duration of the study are considered in relation to program assignment. In Chapter 7, network relations to activities, perceptions, and school outcomes are examined, as are the relations between perceptions and home-school communications. These results and the changes over time and program-control differences identified in earlier chapters are summarized.

Chapter 8 draws more general conclusions through consideration of three questions: (1) whether the parental empowerment program influenced the natural ecologies of families so as to affect the behavior of children; (2) where effects can be detected, what the causal links are between program inputs and child outcomes; and (3) how identified effects and processes vary for different family types. Attention then shifts to a number of family-support related themes arising from the answers to these questions.

CHAPTER 2

MODELS AND METHODS

Charles R. Henderson, Jr.

This chapter provides an overview of our sample design, instruments, and variables and describes models and methods for analysis. It also discusses issues related to attrition and sample comparability over time, program participation, and the specification of programs in our analytic models.

2.1 RESEARCH DESIGN

The planning for the Comparative Ecology Project began formally in 1975, with the initial proposal submitted in 1975 and funded in May 1976. The National Institute of Education funded 4 years of research, including the gathering and analysis of baseline data. Then, in a renewal of the contract, 3 years of support from November 1980 to October 1983 were provided for the collection of follow-up data and the joint analysis of the 2 data points, with an emphasis on the evaluation of program effects on the child.

The U.S. study is part of a 5-nation cooperative research effort also including Germany, Great Britain, Israel, and Sweden. Only in the U.S. was there a program intervention, and its evaluation with data collected in Syracuse, N.Y. is the focus of this report.

A pilot study involving 36 families from 3 neighborhoods began in Syracuse in January 1978, with data collected through August of that year. A second wave of data was gathered on the pilot families during the period October 1979 to April 1980. Baseline interviews for the 276 main-study families were carried out from October 1978 through the end of 1979. Analysis of these data continued until early 1983.

Program work with families began after baseline data collection was completed in a given neighborhood and, for the city as a whole, programs took place from January 1979 to May 1981. The average length of involvement for families was 24 months. Following the end of the program, follow-up data were collected on 225 families from October 1981 through July 1982.

The data-collection instruments used at follow-up are presented in the appendix. The Home School Interview and the Teacher Survey are, of course, new for the second data point. The Social Networks Interview is essentially unchanged from that used previously, with a few questions added. (The method of obtaining the network at Time 2 takes Time 1 as a standing point.) Both the Stresses and Supports and the Child Caregiver Activities interviews were changed substantially: closed-ended questions were added, some of the open-ended questions were eliminated or modified, and some questions were added to deal with change over time and the existence of the Family Matters program.

2.2 SAMPLE DESIGN

In the design and selection of a sample for this study, we set out to accomplish several objectives. First, there needed to be enough families to permit inclusion of a broad range of family types, thus permitting some generalization of findings and the study of reasonably detailed distinctions among families and individuals, where indicated by the data. Second, and acting strongly to limit the first, we wished to utilize a relatively time-consuming in-depth interviewing procedure, in order to obtain the kind of detailed case material that makes possible the qualitative search for statements of causality as well as broad-scale quantitative examination of relationships. Therefore, the sample had to be small enough to accommodate such an approach within the limits of time and money. Given these considerations, our sample is unusual in its planned diversity of family types (together with the intensive interview data from each family).

A primary focus of the study from its inception has been to examine the family as a childrearing system and to examine the effects of different ecological contexts on the effectiveness of this system. To the extent that the research was able to include families from contrasting contexts, such as different work situations and different neighborhoods, we were able to examine some of the effects of those contexts. In addition, studying families from a number of ecologies gave us greater potential to understand relations that hold across groups, and to make more general inferences regarding these relationships.

From an ecological perspective, the neighborhood is of special importance because it constitutes, particularly in modern industrialized societies, a principal environmental sphere in which a number of contexts intersect. Families living in the same neighborhood tend to be similar in race, socioeconomic status, and also, as our own data show, in patterns of family structure, maternal employment, and use of day care services. Moreover, the research evidence indicates that, within such areas of intersection and overlap between structural variables, the so-called developmental "effects" are multiplied rather than added (Bronfenbrenner, 1979). In terms of our ecological theory, these special characteristics identify the neighborhood as a major locus for the formation of what we have called an ecological niche.

This perspective led us to sample families explicitly on the basis of neighborhoods. Accordingly, we employed a stratified random sampling procedure at both the level of neighborhoods and of families. First, 29 city and 28 suburban neighborhoods in the Syracuse, New York area were identified.[1] Syracuse was chosen as a research site because it is a representative moderate-sized urban area and had the additional advantage of being within feasible traveling distance of Cornell University. (Syracuse is recognized in marketing research as a prototype for cities of moderate size across the U.S.) The neighborhoods were then further classified by income level and by ethnic/racial composition. Using 3 income levels and 4 ethnic/race levels,[2] we randomly selected neighborhoods within the 12 subclasses (where such neighborhoods existed), giving a total of 18 main-study neighborhoods (in addition to 2 pilot neighborhoods).[3]

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[1] A major effort was made first to define what we meant by a neighborhood and then to identify all the neighborhoods in the city of Syracuse and the suburban regions surrounding it. The process of defining neighborhoods began with the concept of a geographical niche, which we attempted to define in common with our colleagues in the 4 other countries, based upon natural and human-created physical boundaries, ethnic/racial, social, and cultural boundaries, and the location of neighborhood schools. Niches were then combined into neighborhoods, yielding units that included enough families with a child of the target age for purposes of programs and of analysis, but small enough to be relatively homogeneous and still retain considerable meaning as a neighborhood.

Once study neighborhoods had been specified, we began the process of identifying all the families in each neighborhood with a 3-year-old child. Race (black vs. nonblack), family structure (married vs. single), and sex of target child were factors of primary interest, and it was possible to obtain information regarding them for the families at the time of sampling. We then employed a stratified random sampling method within each neighborhood, choosing families within each of the 8 subgroups defined by family race, family structure, and sex of child. We aimed for a sample of 16 families from each neighborhood, yielding 2 families in each subgroup if available. Of course, certain categories were not possible to fill (for example, black families in certain of the white neighborhoods), and other subclasses were, therefore, correspondingly increased. This method of sampling resulted, as was our intention, in a higher proportion of black and single-parent families than in the Syracuse area as a whole, and also made certain a substantial sample of ethnic whites. The rate of agreement to participate varied by neighborhoods, ranging from nearly 100% in certain neighborhoods to approximately 50% in others. Table 2.1 shows refusal rates by race, family structure, and sex of child for the entire sample.

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[2] The 3 neighborhood income levels, based on estimated median 1970 family income are: low (under $8,000), moderate ($8,000-$10,000), middle ($10,000-$13,500), and high (over $13,500). No high-income neighborhoods were included in the sample. The ethnic/race levels used were: city black (over 50% black); city mixed (10-49% black); city ethnic white (30% or more first- or second-generation foreign born); and suburban non-ethnic white (under 10% black and under 30% ethnic white).

[3] In each of the 12 subclasses, if there were 3 or fewer neighborhoods, each was included in the study; if there were more than 3, we randomly chose 3.

Table 2.1

Refusal Rates (%): Wave I Participation

	Unmarried		Married		Total
	Boy	Girl	Boy	Girl	
Black	43	23	42	41	36
White	17	41	26	37	31

Both the work of other researchers and our own baseline analyses indicate that other demographic variables, such as the parent's work status and occupational level, ethnicity, and education, are also extremely important for understanding the support systems and perceptions of parents. Information bearing upon these variables was not available at the time families were selected, and therefore could not be explicitly structured into the sample. Data on family income, for example, were not possible to obtain prior to the selection of the families; however, stratifying by the variables discussed above, including neighborhood income, resulted in a good sample distribution across family income and other dimensions. Approximately half of the mothers in our study are employed (some part and some full time). Analyses focusing on the family-level factors have included mother's education (12 years or fewer; more than 12) and maternal work status (not employed, working part time, working full time[4]) with factors from the original design, and have divided nonblack parents into ethnic and non-ethnic groupings on their subjective identification with a particular culture or nationality and based on their ethnic background or heritage.[5]

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[4] Full-time work is defined as working more than 35 hours per week; part-time work is defined as from 4 to 35 hours per week, including some occasional workers; not working includes those who do not work and those whose work is extremely limited or irregular.

Table 2.2 shows our sample of neighborhoods by income and ethnic composition. Table 2.3 shows the overall sample in groups defined by family race, marital status, and sex of the child--the 3 factors at the individual level that were used in stratifying the sample.

Table 2.2

Neighborhoods by Race-Ethnic Type and Income Level

(Baseline sample)

Neighborhood Income Level	Suburban Non-ethnic White	City Ethnic White	City Mixed	City Black	Total
Low	0	0	2 (28)	3 (45)	5 (73)
Moderate	2 (31)	2 (33)	1 (16)	1 (15)	6 (95)
Middle	2 (32)	3 (44)	1 (15)	1 (17)	7 (108)
Total	4 (63)	5 (77)	4 (59)	5 (77)	18 (276)

( ) = number of families

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[5] Baseline analyses indicated that the dominant ethnic groups in our sample of nonblack mothers are Irish, Italian, Polish, and German. Non-ethnic categories include "general American culture," English, Western European, Scandinavian, and "mixture." Ethnicity, in addition to being based on these individual expressions, is also defined in terms of the match between husband-wife dyads, resulting in a 4-level variable ranging from "strong ethnicity" (where both parents are of the same ethnic group), to "mixed ethnicity," "weak ethnicity," and "non-ethnicity." This second approach allows us to incorporate the structural concepts of in-group marriage and out-group marriage into analysis. This report does not examine work status and ethnicity in detail. These analyses will be topics of future research.

Table 2.3

Baseline Sample Distribution*

Race by Family Structure by Sex of Child

Sex of Child	Black Unmarried	Married	White Unmarried	Married	Total
Boy	20	11	28	79	138
Girl	30	17	16	75	138
Total	50	28	44	154	276

*Families completing all interviews

Baseline data were collected in 1978 and 1979. The 276 mothers received all instruments. Of the 182 two-parent families, 130 fathers participated in the study, receiving the Stresses and Supports and Social Networks interviews. At the time of follow-up data collection, 225 families remained in the study, including 92 participating fathers. This report, by agreement with the N.I.E., is limited to the perceptions, reports of activities, and networks of the mothers in our sample. Sociodemographic characteristics specific to fathers and to the family as a whole are examined. School outcomes, which have a prominant role in the report, are measured only at the family level.

Programs were assigned on the basis of neighborhoods, with 8 neighborhoods selected as controls and 10 receiving the intervention. We attempted to achieve as good a balance as possible of each of the 2 original programs[6] and of control across neighborhood income types and neighborhood ethnicity types. When it was possible to sample 3 neighborhoods per subclass, assignment of the 3 conditions (including control), 1 to each neighborhood, was made randomly. Similarly, where there were 2 neighborhoods per subclass, once the decision had been made regarding which 2 conditions would be assigned to that subclass, the actual assignment to neighborhoods was random. The program assignment was not divulged to the program staff or to the field staff until after baseline interviewing had been completed in a given neighborhood.

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[6] After 9 months of program operation, the home-visiting and neighborhood-clustering approaches were merged into a single Family Matters program.

2.3 SAMPLE BACKGROUND CHARACTERISTICS AND ATTRITION

In any examination of ecological data (or any data derived by a process of sampling), it is desirable to have comparability of control and program families on potentially confounding background variables for the primary subclass comparisons, or at least to document noncomparability, so that appropriate methods, if they exist, can be employed in subsequent analyses to eliminate the confounding effects. Unconfounded patterns of change over time also greatly simplify analysis and interpretation of program effects. Some designs allow no choice in the assignment of treatment and control groups; others permit total randomization of treatment assignment.

In our study, program assignment, by design, was identical for all families in a given neighborhood. We identified an array of neighborhood types based on 3 levels of neighborhood income and 4 race/ethnicity groups, and assigned the program condition randomly within these groupings by neighborhood type--a stratified randomization on the basis of neighborhoods. Since not all neighborhood types were represented within a given subclass (in fact, some of the 12 subclasses defined by the above factors were not represented by even 1 neighborhood in the Syracuse community), the randomization was incomplete. Even total randomization is no guarantee of comparable treatment groups; it is desirable as a starting point, but statistical control for noncomparability is typically still required. The success of our randomization is discussed below, after consideration of attrition between baseline and follow-up measurements.

2.3.1 Issues of Sample Attrition and Comparability Across Program Groups for Sociodemographic Variables

In any longitudinal study, it is important to study the possibility of differential patterns of attrition by treatment groups (or other groups of interest) from Time 1 to Time 2. Even in a design that is successfully randomized at baseline, selective attrition (usually by self-selection) can produce noncomparability at Time 2.

To examine this possibility in our sample, we used a dichotomous dependent variable: participated in Time 2 data collection vs. did not participate. (We also examined further splits of the nonparticipating group--moved, refused, etc.--but the results of the analysis can be presented in terms of the simple dichotomy.) We examined the variable as a function of program assignment, race, and family structure. The model was analyzed by both general linear model methods and in the logistic linear model (logistic regression). There were no attrition differences by program assignment or other factors, and no significant interactions. This is an important and highly desirable result: it appears that we have no serious problems of bias from selective attrition.

2.3.2 Demographic Comparison of Program and Control Families

We return now to the question of sample comparability, with a focus on program assignment, at baseline for important sociodemographic variables. Note that comparability at Time 2 is not at issue. Noncomparability at the second measurement (more accurately, a change from the situation at Time 1) can be explained in terms of intervening events over time, including, in principle, the program.

Ten demographic variables have been analyzed in several repeated-measures models, each including a program classification factor (with levels program and control) and a time factor (Time 1, Time 2 assessment), in order to assess comparability. The first model includes, in addition, race (black, white) and family structure (one- and two-parent families), and was analyzed for the total Wave II sample. The second model, used for the white sample only, included the factors family structure and sex of the target child, in addition to program and time. In these 2 models, the Time 1 definition of marital status was used: women unmarried at Time 1 were termed single, with a similar definition for married women. A final model was used for two-parent families in which the number of parents remained unchanged over the 3 years of the study. It included the factor race in addition to program and time and is used here in reports of fathers' education and working hours. Table 2.4 gives the subclass sizes for each of the 3 models. The total sample size is 224 because marital status was included as a factor in these models, and 1 married couple separated during the time of baseline data collection and was therefore excluded from these analyses.

These demographic analyses have 2 primary purposes: to examine the initial equivalence of the sample for the program and control groups; and to examine change over time, with an interest in whether this change is different for program and control families. A discussion of each demographic variable analyzed is given at the end of the chapter in Technical Note 2.1.

No nonequivalence at Time 1 was found for family income, use of external child care, mother's or father's education, or father's work hours. Control blacks had more children at Time 1 than did blacks assigned to programs. There was an overall pattern of older children in the control groups. This held especially for blacks, and the pattern reversed for single-parent white families. Greater mobility (number of moves during the 3 years prior to baseline) and a lesser length of time in the current neighborhood was found for controls in comparison to program two-parent families, while the reverse held for single women. Overall, control whites had a greater residential stability than program whites, while the tendency reversed for blacks. Among single mothers, for working hours there was an interaction between program and race: more hours were worked by whites assigned to programs than control; but control blacks worked more than program blacks.

Table 2.4

Sample Sizes for 3 Basic Models

Total Sample

	1-Parent Control	1-Parent Program		2-Parent Control	2-Parent Program	
Black	20	20	40	8	14	22
White	12	24	36	58	68	126

Total Number of Families = 224

White Families Only

	1-Parent Control	1-Parent Program		2-Parent Control	2-Parent Program	
Boy	6	16	22	30	35	65
Girl	6	8	14	28	33	61

Total Number of Families = 162

Married at Both Time Points

	Black Control	Black Program		White Control	White Program	
Time I	6	13	19	52	64	116

Total Number of Families = 135

We do not regard these initial program differences either as unexpectedly numerous (it is important to keep in mind that most of these findings are at the level of interactions of several variables) or as posing great analytic difficulties. Of the variables showing differences, only mother's work hours was related to outcome variables at baseline. The age of the child could prove to be a more important variable at Time 2. We have examined these potentially confounding variables in our models, removing them from the final models that are reported only if they can be shown to have negligible effect.

2.4 DATA COLLECTION INSTRUMENTS

2.4.1 The Social Networks Interview

Because our interest is as much in describing the social ecology of family life as in measuring amount and kinds of social support, the procedure for generating original (baseline) network membership differed from that used by most other researchers. Instead of identifying members through a series of exchange-related questions ("Can you tell me who you turn to for emotional support?") we began with a general definition of what constitutes membership ("People who make a difference to you, and are important in one way or another"), and then asked the respondent to apply that phenomenological definition to categories of people characterized by well-known roles and contexts (neighborhood, relatives, work- or school-mates, people in agencies or organizations, etc.). Information was then gathered about the content exchanges and leisure-time activities that the parent engages in with his/her "network members," thus distinguishing a functional from a more peripheral social circle. A third and more primary circle was then distinguished by asking the parent to designate the "most important" network members from the rest of the list and to talk about why they were important. The interview concluded with the collection of basic background information about the members of the primary and functional circles.

In the follow-up phase, the goal was to measure changes in network size, composition, and functioning, where they occurred. Procedures for identifying changes in network membership are in the early pages of the Wave II interview, which is provided in the appendix. Once the membership list was updated, the interview proceeded very much as during baseline.

The social network variables included in this report are discussed in Chapter 6.

2.4.2 The Child-Caregiver Activities Interview

The Child-Caregiver Activities instrument was designed to yield data bearing on the actual behavior of parents with their children. It was used in an interview conducted with the mother (and in Wave II, separately with fathers in two-parent families) in which the parent was asked to describe the daily activities engaged in by the child and by all persons in the child's immediate environment. The parent was asked to describe the activities of the morning, afternoon, and evening of the previous day, with particular reference to the target child, but including the activities of all persons in the child's presence.

The data yielded by the interviews were subjected to content analysis using a code based on an ecological model of the microsystem as a context for human development. Specifically, all reported or observed activities are classified along three dimensions: initiative, content, and structure. Initiative refers to whether the activity was instigated by the child or by some other person. The content categories were derived from our experience with pilot studies and baseline data. The content categories include: negative affect, positive affect, television, play, object play, motor play, productive play, games, educational games, fantasy, passive recreational activity, active recreational activity, school-related recreational activity, lessons, educational activities, general conversation, school-related conversation, school-related conversation (cognitive), self-care, assigned self-care, chores, assigned task, caregiving, and helping.

Structure refers to whether the child's activity is engaged in jointly with another person, is related to but not joint with another person's activity, or is isolated from the activities of others. The identity of the other person(s) involved in the activity is also coded. Structure is further described by the power relation: the child's power (control) in the activity is greater, equal, or less than the others involved, for non-isolated activities.

The interview also contains checklists of questions regarding amount of activities of all types engaged in by the child independently and with his or her parents. The analyses in this report are limited to variables defined from these checklists, and the variables are described in Chapter 5.

2.4.3 The Stresses and Supports Interview

How does one discover which concrete aspects of the ecological environment have an impact on developmental processes? Our ecological perspective suggests an answer to this question: one group that should know a good deal about what features of a given milieu affect human functioning are the people who live in it. Accordingly, for the first approximation of the environmental conditions most relevant for the rearing of young children, we turned to their parents. The Stresses and Supports Interview was specially constructed for this purpose--to identify sources of environmental stress and support experienced by each parent in each of a dozen domains existing both within and outside the home. The choice of domains was based on the free responses of parents to open-ended interviews conducted in a series of pilot studies. Half of these domains lie in what we have called the meso- and exosystems. Encompassed within the mesosystem are the various settings in which young children participate as they grow older and begin to move out of the home; specifically, day care settings, children's informal play groups, and school. The exosystems that emerged in our pilot studies were primarily those involving the activities of parents outside the home; specifically, conditions of work (for both self and spouse), sources of income and financial security, family services, social organizations, and neighborhood conditions. The environmental forces operating within the home are assessed in 4 more domains of the Stresses and Supports Interview: housing conditions, housekeeping chores, the activities of the spouse and other household members, and, finally, the parents' perceptions of themselves and of the child.

Within each of these domains of the interview, 2 types of questions were employed: open-ended and concretely focused. The former were designed to elicit perceived sources and levels of environmental stress or support in the given domain (e.g., How is the care center working out?); the latter deal with objective conditions (e.g., During what days and hours is (Johnny, Mary) at the center?).

The interviews were analyzed to determine "units" that represent self-contained expressions of stress or support (negative or positive views). Each unit is coded for content including: the subject (who is experiencing the stress or support); the sources (the domain, e.g., neighborhood, with further differentiaton by subdomains, e.g., traffic, as appropriate; people; and themes that can be applied to a variety of domains, e.g., conflict with others, age of child, shared values); valence and intensity (on a scale of -3 to +3). Units are also coded to indicate whether the source is in the past, present, or future. The coding scheme is devised so that variables can be constructed at any level of aggregation and can be based on various combinations of themes, people, and specific domain areas.

The checklist variables concerning people (self, spouse, child) are analogous to ones derived from the content coding, and both are interpreted as perceptions of these people. The variables presented in this report are given in Chapter 5.

2.4.4 The Home-School Interview

These instruments were used for the first time in the second data assessment period. Variables were derived based on the following kinds of information contained in the interviews.

Teacher Questionnaire: The teacher of each target child was requested to fill out a detailed questionnaire, focusing on the following areas:

a. Home-school relationship. The aspects to be covered included frequency, occasion, initiator, and content of all contacts and communications between the target child's parents and teacher, as well as the teacher's attitudes about contact with the family.

b. Child's school behavior. Scales derived from questionnaire items allow specific attention to be focused on aspects of the child's behavior in school such as initiative, interest in learning, task orientation, conduct in school, and relations with teachers and peers.

c. Child's school record of academic performance. Each teacher was asked to complete a copy of the report form in use in the Syracuse City School District. This provided information on the child's school performance in reading and other language arts, mathematics, social studies, science, art, music, and physical education, the child's social behavior and work and study skills, and the child's record of attendance.

Parent Interview: Parents were asked about the home-school relationship as it affects themselves and their child. The following topics were included in both open-ended and structured questions.

a. Information possessed by the parent about the child's school experience and performance, and about school resources and policies that affect parents and their children.

b. A record of contacts and communcations (frequency, occasion, initiator) paralleling that in the teacher questionnaire.

c. Parent attitudes about the child's school experience and about the home-school relationship.

2.5 PROGRAM PARTICIPATION

There are numerous issues in the evaluation of the program that relate to how programs should be represented in our models and to variables that may be confounded with participation.

2.5.1 Measures of the Level of Program Participation

Working with the process study staff, we have invested considerable effort in developing accurate measures of participation in programs by each family. The purpose of this effort was to determine how to specify programs in our evaluation models. For control families, the level of participation is zero. For families in neighborhoods provided a program, there are 3 primary sources of information: the workers' logs in which they recorded contacts with families (phone calls, home visits, group meetings), the recordex (a central record kept by the workers) that provides similar information, and a record of Family Resource Center meetings attended, which took place in some neighborhoods in addition to the regular program meetings.

Since these sources inevitably do not agree perfectly, one task was to merge the alternative sources into single measures of participation. Initial analyses looked at such variables as number of Program I visits, Program II visits, and group meetings as a function of the usual array of demographic variables, with neighborhood included as an additional focus. We then looked at the comparable variables from the alternative sources side by side for each family in the sample. With the understanding gained from these analyses, we arrived at the following primary variables measuring level of program involvement:

number of regular meetings = max (log meetings, recordex meetings)
Family Resource Center meetings
total meetings = sum of first 2 variables
Program I visits = max (log Program I visits, recordex Program I visits)
Program II visits = max (log Program II visits, recordex Program II visits)
total visits = sum of preceding 2
total program contacts = total meetings + total visits.

This list of variables was reduced to 5 for primary analyses: number of Program I visits, number of Program II meetings, number of Program II meetings plus visits, number of Program I visits plus Program II meetings, and total meetings plus visits (of either type). Distinctions between FRC and non-FRC meetings and distinctions based on source of information (recordex vs. worker log) were not maintained.

2.5.2 Variables Confounded with Program Participation

Considerable attention was given to analyses that examined level of program participation as a function of sociodemographic variables. If there were more participation, or a different pattern of participation, within certain groups, this would need to be taken into account in the evaluation of programs. Program effects caused by more participation would need to be distinguished from those seen in altered outcomes (for model subgroups) given comparable levels of participation.

At a more fundamental level, we needed to determine whether differences in outcomes as a function of participation were more correctly interpreted as differences in background characteristics that were manifested in self-selected levels of participation in the program.

For example, if families of high socioeconomic status choose (because, say, they have the luxury of greater time to do so) to participate in programs more, and if these same families do better on certain outcome variables, then an apparent program effect may in fact be due to SES. We have some indications that families in the low-participation group are for certain variables performing better than those with high participation. Some self-selection process may be operating to cause this phenomenon. For example, certain families may in fact have needed no assistance, correctly perceived this and have chosen not to participate in the program, and have outcomes showing good performance.

We have looked in an analysis of variance at the participation variables for families assigned to programs as a function of race, family structure, and sex of the target child. In addition, continuous demographic variables, including family income, mother's education, mother's working hours, mother's age, number of hours in external child care, residential mobility, child's age, number of children, and birth order, have been included (one at a time) in the model, with regressions by smallest subclass. In these analyses, we wished to detect any participation tendencies by family types.

The demographic variables used were from Time I. This seemed to be the more appropriate approach in considering participation as a function of background characteristics. It is not fully precise, however, since participation patterns took place over a time period between baseline and follow-up, and demographic variables also changed over that time period. We carried out these analyses for Program I, Program II, and total participation measures. Selected results are presented below. Additional results are included in Technical Note 2.2.

We consider first for the "total-events" participation variable the race (R) by family structure (P) by sex of child (S) analysis of variance for the sample of 126 families that was originally assigned to programs and that completed Wave II interviews. There is an interaction between race and family structure that summarizes the significance tests in the model: the lowest participation is by two-parent black families and the highest is by two-parent whites. This also produces a race main effect, but participation is essentially equivalent in the one-parent families.

Next we examine the analyses that, one at a time, enter continuous demographic variables in this model. Higher income is associated with more participation for white families in which the target child is male, especially when there are 2 parents. There is a significantly stronger relation of participation to income in this group than when the child is a girl.

There is an overall trend of more participation when the mother's education is greater. The relation is strong for white families. Looking at the white families in more detail, the relation is strongest for single mothers of girls and married parents of boys, with no relation seen when parents were married and the child a boy.

There is no relation between program participation and the amount the mother works or the number of hours the child spends in external child care.

Mobility (the number of moves in the previous 3 years) is not strongly related to participation. There is a trend for single mothers who have moved less to participate more, with a stronger statistical relation for whites. There is a family structure difference for whites--with the pattern reversed in two-parent families.

The mother's age is negatively associated with participation, for white families. This would have held for the entire sample except that black single mothers of boys participated more when they were older.

There is, for two-parent whites, more participation when the child is younger. A regression of the same sign is seen for single black mothers. The only relation between number of children in the home and participation is a negative one for single white mothers, especially when the child is a boy. For white families, the higher the target child's birth order (the earlier born), the more likely the family was to participate (especially when the child was a boy).

In summary, the most important differences in program participation appear to be those based on race and family structure. Sex of the child is a frequent modifier of findings. Among the continuous sociodemographic variables, more relations are seen in the white sample. This is not surprising since participation itself was greater in that group. Taken as a whole, there are fewer strong relations among these variables than might have been predicted. This means that concern about alternative interpretations of program effects reported in the following chapters is less than it would be otherwise. Overall trends for more participation with higher income and more maternal education need to be kept in mind. The results for mother's age, child's age, birth order, and number of children may be important as a group for certain types of outcomes.

2.5.3 Model Specification of Programs

Working with the 5 major participation variables (and the additional knowledge of original program-control assignment), it is possible to include programs in our models in many ways. When looking at variables such as school outcomes as a function of participation, we concentrated on the "total-events" variable (meetings plus visits). In looking at that variable, controls were compared with program families participating in fewer or more than 20 events, and, alternatively, fewer or more than 10. When examining the whole sample, the cutoff of 20 gives subclass sizes that are too small (e.g., n = 2 for married blacks). Using 10 (or possibly 15) seemed a better alternative for that sample. For two-parent whites alone, the cutoff of 20 is preferable; there is a good distribution in all subclasses and the higher cutoff maximizes chances of detecting program effects (in the higher-participation group).

Alternative models employed a 4-level program variable (particularly for the married white subgroup, where the sample is large enough to do this) or included participation as a continuous variable. We carried out some analyses with the total-events variable as a covariate, specified separately by smallest subclasses. There appear, for the 3-level variable, to be some quadratic effects--the middle group deviating from the controls and the high-participation group. This could argue for including both quadratic and linear terms, when using the continuous form of participation. It is also possible to specify models that include both a categorical and a continuous representation of participation.

A more fundamental issue of program specification (in comparison to specifying amount of participation) is whether to maintain a distinction between Program I and Program II. To do so is, of course, complicated by the merger of the 2 programs midway in their implementation. Using our other 3 participation measures (listed above), we can distinguish families that were essentially Program I type from those that were essentially Program II type. And, we can impose high and low levels of participation on this structure. All of this is in the categorical-variable approach, and the problems of small subclass sizes are increased by the larger number of splits. We can also, separately or jointly, include continuous measures of Program I and Program II participation.

Following many analyses with these various models, with a particular emphasis on school outcomes, we decided to use throughout this report a model that included just the simple 2-level comparison based on the nominal assignment of a family either to control or to 1 of the 2 program conditions. This was the most conservative approach, and minimized artifacts due to small subclass sizes and to self-selection of families into various levels of participation. This decision process is discussed further in the following chapter on school outcomes.

2.6 ISSUES RELATED TO CHANGE OVER TIME

In this section, we discuss the longitudinal aspects of the study. Issues related to the comparability of our sample at the 2 time points have been addressed in Section 2.3.2. We invested considerable time in deciding how to measure and specify in models sociodemographic variables that change over time. For continuous variables that are likely to be included as covariates, the matter was fairly straightforward: in models with a repeated measure (over time) on the outcome of interest, the 2 values on the covariate could be used; for Time 2 outcomes alone, either or both of the Time 1 and Time 2 scores could be used, or the difference score could be included. For categorical variables such as work status or family structure (married vs. not married), the situation is more complex. For some specific analyses, we included both Time I and Time 2 status. This permits an explicit focus on change, but small subclass sizes preclude using this approach when several additional variables are also to be included. The main variable for which a decision was required for primary models was family structure, and, after some preliminary runs with alternative specifications, we determined that the current (Time 2) marital status was the preferable choice.

A serious issue in evaluating a program is the ability to distinguish real effects produced by the program from artifact due to (initial) sample nonequivalence between program and control groups. Use of a randomized sampling design is clearly an asset, but no assurance of equivalence, in this attempt. Our stratified random sampling design thus gives us considerable advantage. The relatively small number of neighborhoods (and the necessary assignment of families to programs on the basis of neighborhoods), however, makes likely some degree of nonequivalence. We examined this question, as discussed above, for measured sociodemographic variables, but even with adjustment for these variables there is no assurance that there is preprogram equivalence on the outcomes of interest.

Having measures on a comparable scale at both time points is of major benefit in confronting this evaluation question. A repeated-measures analysis, or a difference-score analysis, can then be used. As will be discussed in the next chapter, we do not have this situation for school outcomes. In contrast, for social networks variables we have wholly comparable measures at the 2 time points, and can be relatively more secure in our inferences. For parental perceptions and for activities, the situation is intermediate between networks and school outcomes: we do have Time I measures, but not on an exactly comparable scale. For these variables, we have used a combination of Time I scores as covariates, with Time 2 as the dependent variable, and repeated-measures analyses, even though the assumptions for this latter model are not met exactly.

2.7 ANALYTIC METHODS

2.7.1 Summary of Statistical Methods

Our conceptual schema, presented in Figure 2.1, outlines the hypothesized interrelations among the major classes of variables. Home-school communications and the child's performance in school, although conceptually distinct, are shown in a single box, to minimize the number of connecting arrows. We do not in this report present an analysis

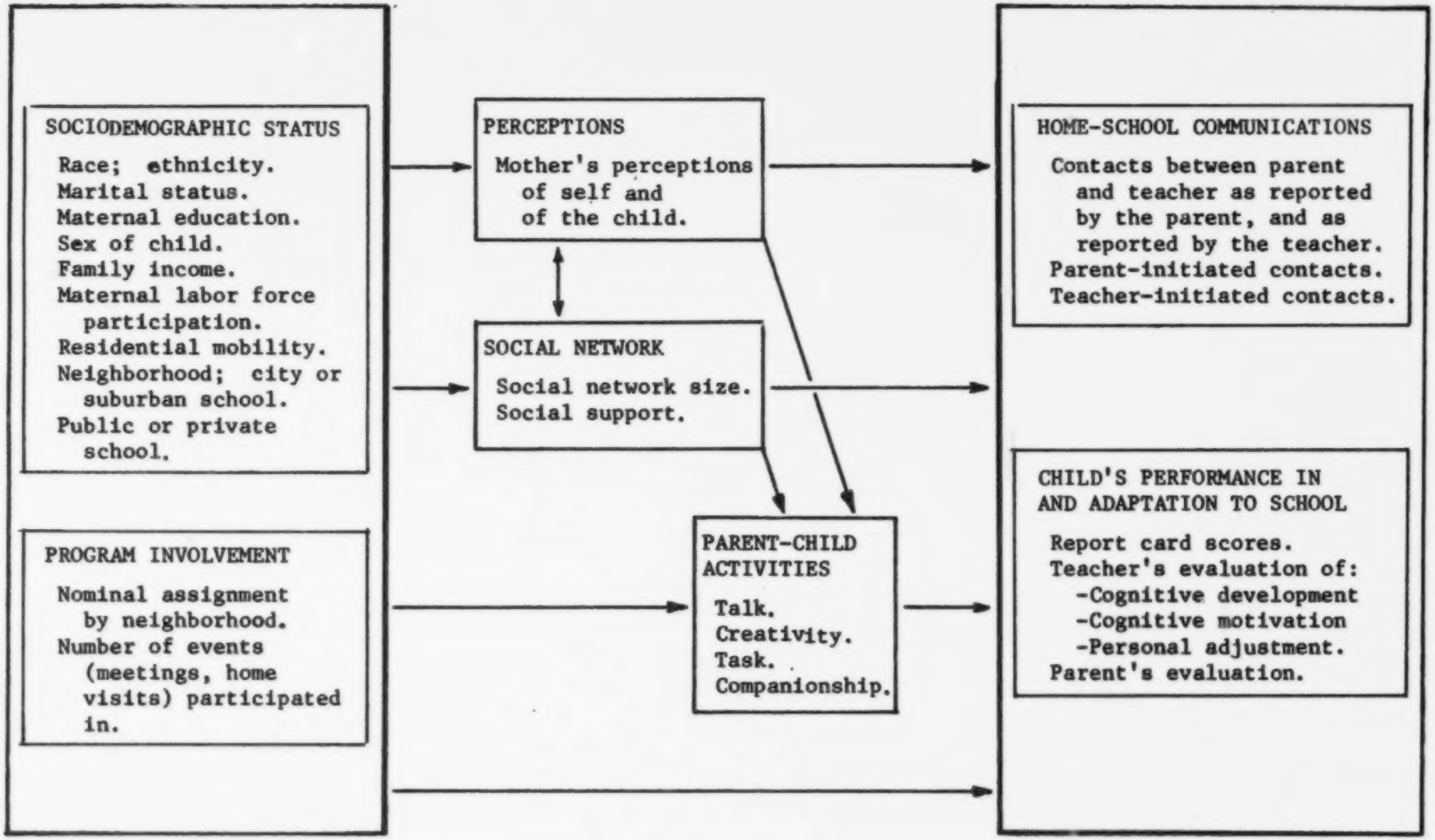
of the link between these 2 sets of variables; it is not easy to determine causal direction. Sociodemographic variables and the program are also shown in a single box. While program participation, as discussed above, can be analyzed as a function of sociodemographic characteristics, in the remainder of the report the emphasis is on the joint effects of these variables and the program. This involves an examination of the main effects and interactions among all of these variables, including the program, in relation to the other domains indicated by boxes in the diagram. The arrows, as drawn, are intended to imply the possibility of interactions among any variables (from any domain) that appear in a specified model.

It is important to distinguish between what we mean by direct and indirect effects. Direct effects are those implied by a single path on the diagram -- most particularly, the effects of the program on child outcomes without operating through, e.g., parent-child activities. In contrast, indirect effects are those that affect the child through the parents (or the parent-child interaction), as measured by parents' perceptions of self and child, by their reports of activities with the child, and by social network measures. Thus, in a formal sense, there is an isomorphic relation between direct and indirect effects, and single- and simultaneous-equation statistical models. Certain effects that we specify as direct could actually be indirect through variables we have not included in the schema -- but our semantic distinction corresponds to those variables that are represented in the schema.

Analyses based on simultaneous equations are not presented in this report. They will be the subject of future work. We do retain the direct/indirect effect terminology, even

FIGURE 2.1

CONCEPTUAL SCHEMA FOR PROGRAM EVALUATION: HYPOTHESIZED INTERRELATIONS AMONG DOMAINS


SOCIODEMOGRAPHIC STATUS
Race; ethnicity.
Marital status.
Maternal education.
Sex of child.
Family income.
Maternal labor force participation.
Residential mobility.
Neighborhood; city or suburban school.
Public or private school.
PROGRAM INVOLVEMENT
Nominal assignment by neighborhood.
Number of events (meetings, home visits) participated in.
PERCEPTIONS
Mother's perceptions of self and of the child.
SOCIAL NETWORK
Social network size.
Social support.
PARENT-CHILD ACTIVITIES
Talk.
Creativity.
Task.
Companionship.
HOME-SCHOOL COMMUNICATIONS
Contacts between parent and teacher as reported by the parent, and as reported by the teacher.
Parent-initiated contacts.
Teacher-initiated contacts.
CHILD'S PERFORMANCE IN AND ADAPTATION TO SCHOOL
Report card scores.
Teacher's evaluation of:
-Cognitive development
-Cognitive motivation
-Personal adjustment.
Parent's evaluation.

for analyses carried out by single-equation methods. Thus, for example, the term "indirect effect" is used in discussing the effect of the program on school outcomes through change in social networks. The true indirect effect is not partitioned out, however, and we can not know with certainty which part of a significant network term in the equation is the indirect effect of the program and which part is a direct network effect or the indirect effect of other factors.

The core of our initial statistical analyses involves single-equation models, using regression techniques (including analysis of variance and covariance). These models frequently involve specifying different regressions for each subgroup in the model (analysis of homogeniety of regressions), random as well as fixed factors (mixed models)[7], the simultaneous examination of group (ecological) and individual effects, and repeated measures on the dependent variables. Relevant references for these methods are Searle (1971), Henderson and Henderson (1979), and Henderson (1982). Methodological complications (small subclass numbers, selection bias, etc.) are inherent in this type of research, and we have devoted much attention to them. Our approach is to gain as much understanding of these problems as possible in single equation models, using general linear model methods, before moving to more complex models with analogous complications and even less tractable solutions.

As anyone who attempts to understand data realizes, there exists no single "correct" analytic strategy. Typically, only some of the important theoretical considerations can be taken into account at any one time; models can only represent some of the real-world phenomena that the researcher thinks are important. Our approach is based on the belief that only after relationships of the type discussed in the previous paragraph are thoroughly understood should one proceed to models involving simultaneous equations and latent variables. In the subsequent stages of our analysis beyond the scope of this report, we do plan to use structural equation models to examine simultaneous relations that are implied by certain paths in the diagram of Figure 2.1.

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[7] Mixed-model methods will be used in future analyses in studying specific effects of neighborhood-level regressions and the remaining general effects of neighborhoods as a factor.

2.7.2 Comparison of Groups

In looking at relations among variables, one can use models with few variables or models with many variables, or some multi-stage process involving a sequence of models. This involves the difficult topic of model construction and interpretation of statistical data. We will limit our comments here to the following. It is frequently useful to examine a series of models including alternative or additional variables, in order to gain understanding of where the primary relationships exist.

Thus, as part of an overall process, we looked at simple regression models and analysis of variance. But, in general, the analysis process moved eventually to more fully specified models with both continuous and categorical variables, whether in examining mean differences or the regressions involving continuous variables. The primary focus of these analyses is frequently the examination of interactions. Testing interactions among categorical variables is familiar. The test of homogeneity of regressions is, in effect, the test of an interaction between a continuous variable and one or more categorical variables.[8] Interactions among continuous variables are commonly also implied by substantive theory.

In many of the results presented in subsequent chapters, the separate regression relations are shown in the form of plots. Since these are 2-dimensional representations from models that have many independent variables, the plots show the dependent variable on the ordinate and the independent variable of particular interest on the abscissa, with all other effects subsumed by the intercept. Details of this method can be obtained upon request. The lines are plotted over the range of existing data points for each subgroup.

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[8] An example of such an analysis is given in Technical Note 2.3. See Henderson (1982) for the theoretical development. The use of the fully specified homogeneity of regressions model, with tests at each line of the analysis for the regressions, and (with care for proper interpretations) also for mean differences, is emphasized in this report. The importance of such an approach is obvious, as it leads to substantive findings regarding the regressions and indicates which tests of mean differences can be interpreted free of the covariate value.

2.7.3 Change Over Time

Many of our outcomes will have been measured at baseline and again in the follow-up phase. In one central approach that we take to study change over time, the models are expanded to include a fixed factor with levels representing the 2 time points, and a random factor for "individuals," giving a repeated-measures model. The focus of interest is on the interactions of other variables with time. For example, a significant interaction between the mother's education and time means a different relation among education groups at Time 1 compared to Time 2.

Technical Note 2.3 discusses the model for examining homogeneity of regressions for data at a single point in time. The analysis can be extended to the repeated-measures case. Are regressions of school performance on joint activities different, for example, at Time 1 than at Time 2 (an interaction of time and joint activities), or different for the time-by-education subgroups (a 3-way interaction)?

2.7.4 Subclass Sizes

The adequacy of subclass numbers in the design requires some discussion. Clearly, we have more categorical variables of importance than can be included jointly in any given model. This is true in virtually any ecological research (and much of laboratory research as well). If one is willing to make certain assumptions (for example, that certain interactions are negligible), analyses can proceed with small or even empty smallest subclasses. Other methods can also be used. See Henderson (1979) for a more complete discussion of this topic. In these approaches, attention can be focused on the lower-order effects that are estimated based on a larger number of observations. To leave out effects introduces potential bias, and it is generally better to include as many variables of importance as possible. The usual trade-off between increased sampling variance and decreased bias resulting from including additional variables should also be kept in mind, however.

Our general approach is to look at a series of models with various combinations of factors, attempting by this stage-wise process to gain a good understanding of the underlying relations. As we use models that compare single vs. married white women, or blacks vs. whites, fewer variables can be included, owing to the smaller sample numbers of the latter groups.

2.8 MODELS

A large number of alternative models were examined in the process of developing the models ultimately presented in this report. Some of these are discussed in the following chapters, as are the final models used. There is, however, a core model that was derived and is used throughout the entire report. As already discussed, the program is examined as a 2-level factor, denoted by T, based on nominal assignment. The program factor, race (R), and family structure (P) are always in this basic model. The subclass sizes in this model are given in Table 2.5. Maternal education, as an indicator of socioeconomic

Table 2.5

Number of Mothers by Program, Race, and Marital Status

		Control	Program	Total
Black	Single	19	21	40
	Married	10	13	23
White	Single	16	23	39
	Married	54	69	123
	Total	99	126	225

status, is also in this model either categorically ($\leq$12 years vs. > 12 years), denoted M, or in continuous form with regressions specified separately for the 8 TRP subclasses.

Other variables are entered into this basic model, depending on the question of interest. In a primary model form, an intervening variable of interest -- for example, a measure of parent-child activities -- is included with separate regressions by P for the 8 TRP subclasses (or the 16 TRPM subclasses) while the outcome -- for example, the child's performance in school -- is examined. In this model, the primary focus is whether the regressions -- of school performance on activities, in this example -- are the same for the 8 model subclasses, and in particular whether the regressions are the same for programs and control.

TECHNICAL NOTE 2.1

Demographic Comparison of Program and Control Families at the 2 Assessments

Income

Two general and quite predictable effects hold for income: single mothers have lower income than do two-parent families, for both races, in both program and control families, and at both assessment times; income is consistently higher at Time 2 than Time 1.

Program vs. control family income was evenly distributed at Time 1, as a result of our sample design. The only tendency toward initial inequality was for two-parent black program families to have greater income than their control counterparts. This was significant at only the .14 level, however.

There is a differential pattern of change in income over time that has the appearance of a program effect. In the white sample, and particularly for two-parent white families, the increase in income over time is greater for program than for control families. A consequence of this effect is that program blacks at Time 2 have considerably lower incomes than program whites, pushing to statistical significance an overall trend in the sample (only single mothers in the control group are equivalent across race at both time points). Before a conclusion regarding program effects can be drawn, considerable additional analysis must take place. For example, since we know that income is higher for two- than one-parent families, if the proportion of married women at Time 2 in the program group increased relative to the control group, we could be observing a family-structure as opposed to an income effect. An examination of the income results for the subsample with unchanged marital status over time does not confirm this speculation, however. Other alternative interpretations should be pursued in future work.

Table 2.6

Family Income

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	8,310	7,330	-980	15,800	19,510	3,710
	Time 2	10,990	10,140	-850	19,870	22,310	2,440
		2,680	2,810	130	4,070	2,800	-1,270
White	Time 1	8,420	8,920	500	18,220	18,970	750
	Time 2	11,660	13,780	2,120	22,840	25,950	3110**
		3,240*	4,860**	1,620	4,620**	6,980**	2,360#

White Families Only:

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Boy	Time 1	6,300	9.930	3,630	17,980	18,820	840
	Time 2	10,900	13,380	2,480	21,540	24,590	3,050*
		4,600	3,450#	1,150	3,560**	5,770**	2,210
Girl	Time 1	10,540	6,920	-3,620	18,480	19,130	650
	Time 2	12,410	14,590	2,180	24,230	27,400	3,170*
		1,870	7,670**	5,800	5,750**	8,270**	2,520

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Mother's Education

There is considerable initial (baseline) nonequivalence, with higher maternal education existing for both black and white unmarried women and for married whites. There are some qualifications by sex of the child, as can be seen in the tables. These differences also hold at Time 2, but slightly less strongly. A number of groups showed an increase in the women's mean education between the 2 time points.

The magnitude of the education nonequivalence has clear implications for our analysis: the confounding influences of this variable must be controlled for.

Mothers' Work Hours

For the number of hours worked by the mother, the relations among program status, time, family structure, and race are strong and complex; the pattern of results is further qualified by sex of the target child in white families. While there are numerous 2- and 3-way interactions, the focus here will be on program differences and change over time.

For white single mothers, there exists a strong initial (Time 1) pattern of control women working more than program women, and this result is primarily due to families in which the target child is female. This control-program effect carries over to Time 2, but with families with boys contributing more to the effect. Aside from this 1 finding, there is program-control equivalence at Time 1.

There is an overall trend for women to work more at Time 2 than Time 1, but some major qualifications hold. For single mothers, this pattern is seen for blacks, both program and control, but not (significantly) for whites. The pattern is more complex for married women. For married blacks, who even at Time 1 work the most of the 4 race-by-family-structure groups (married black and single white women work more hours than single blacks and married whites), there was a large increase in number of hours worked for the program women but not for the control, producing both a program and a time effect involving that group. This could be a result of the program, but this finding is not pursued further in this report.

Table 2.7

Mother's Education
(In Years)

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	10.75	11.20	0.45**	13.13	12.93	-0.20
	Time 2	11.00	11.65	0.65**	12.88	13.14	0.26
		0.25	0.45**	0.20	-0.25	0.21	0.46
White	Time 1	11.33	11.96	0.63**	12.48	12.94	0.46**
	Time 2	11.75	12.08	0.33#	12.79	12.90	0.11#
		0.42#	0.12**	-0.30	0.31**	-0.04	-0.35*

White Families Only:

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Boy	Time 1	11.83	11.81	-0.02	12.13	12.77	0.64**
	Time 2	12.17	11.63	-0.54*	12.50	12.74	0.24#
		0.34	-0.18	-0.52	0.37**	-0.03	-0.40*
Girl	Time 1	10.83	12.25	1.42**	12.86	13.12	0.26*
	Time 2	11.33	13.00	1.67**	13.11	13.06	-0.05
		0.50#	0.75**	0.25	0.25#	-0.06	-0.31#

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Without examining sex of the target child, the situation for married white women appears to be simply one of increased hours over time for both control and program. The primary increases, however, are for control families with a boy and for program families with a girl, resulting in a strong program-by-sex-by-time interaction for the two-parent whites. We have seen in baseline analyses of parental perceptions of the child an interaction between mother's education and sex of the child in a model including her work status, and the relation of this to program involvement needs examination. In addition, there is preliminary evidence that level of program involvement may be related to sex of child and education.

Table 2.8

Mother's Work Hours

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	10.00	15.75	5.75	26.00	24.00	-2.00
	Time 2	16.75	19.50	2.75	20.25	34.50	14.25*
		6.75#	3.75#	-3.00	-5.75	10.50*	16.25*
White	Time 1	23.75	12.83	-10.92*	12.90	11.32	-1.58
	Time 2	26.00	15.33	-10.67*	17.12	16.75	-0.37
		2.25	2.50	0.25	4.22#	5.43*	1.21
White Families Only:							
Boy	Time 1	17.83	12.83	-5.45	12.93	13.00	0.07
	Time 2	27.17	13.44	-13.73*	18.93	11.60	-7.33*
		9.34	1.06	-8.28	6.00#	-1.40	-7.40#
Girl	Time 1	29.67	13.75	-15.92*	12.86	9.55	-3.31
	Time 2	24.83	19.13	-5.70	15.18	22.21	7.03*
		-4.84	5.38	10.22	2.32	12.66**	10.34*

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Fathers' Education

White program fathers at Time 1 had a higher level of education than white control fathers at Time 1. This initial inequality was highly significant. The education level of black control families at Time 1, on the other hand, was slightly higher than that of black program fathers.

There was a highly significant race difference for program fathers, with whites having the higher education level. The program-by-race interaction was significant at Time 1, with control blacks and program whites having higher educations than the other 2 groups; this pattern also holds at Time 2.

At Time 2, white fathers, both control and program, had a higher education level than they did at Time 1. The same trend held, but nonsignificantly, for blacks. White program fathers still have a significantly higher education level than white control fathers; and black control fathers still have a higher education level than black program fathers.

Table 2.9

Father's Education

	Black			White		
	Control	Program	Diff.	Control	Program	Diff.
Time 1	12.83	12.23	-0.60#	12.44	13.16	0.72**
Time 2	13.00	12.31	-0.69#	12.67	13.47	0.80**
	0.17	0.08	-0.09	0.23	0.31*	0.08

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Fathers' Work Hours

White fathers were working more hours per week than black fathers in 1978-79 in both program and control families. Job cutbacks in 1980-81 may be reflected in the white sample, particularly for program families, with fathers working significantly fewer hours at Time 2. Black fathers, who as a group had not been working as many hours to start with, did not show a decrease in hours of work over time.

Table 2.10

Father's Work Hours

	Black			White		
	Control	Program	Diff.	Control	Program	Diff.
Time 1	33.33	37.38	4.05	44.58	44.62	0.04
Time 2	35.50	39.92	4.42	41.63	40.42	-1.21
	2.17	2.54	0.37	-2.95	-4.20#	-1.25

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

External Care

Amount of care provided children outside the home (excluding school) decreased substantially for all children, regardless of race, family structure, or program. This reduction can be attributed to the children's entry into school. This decrease is most dramatic for black children in two-parent families, who were experiencing the highest levels of care outside the home at baseline. White children in single-parent families appear to be most involved with external care at follow-up. No program affect is apparent in the data.

Table 2.11

External Care
(Hrs. Per Month)

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	62.05	74.25	12.20	90.25	85.71	-4.54
	Time 2	25.45	41.90	16.45	19.88	21.43	1.55
		- 36.60**	-32.35*	4.25	- 70.37**	- 64.28**	6.09
White	Time 1	78.25	68.08	-10.17	30.59	33.00	2.41
	Time 2	42.33	36.46	-5.87	12.45	9.06	-3.39
		-35.92*	-31.62*	4.30	-18.14*	-23.94**	-5.80
White Families Only:							
Boy	Time 1	82.33	66.44	-15.89	20.23	24.89	4.66
	Time 2	45.67	27.13	-18.54	14.27	4.06	-10.21
		-36.66	-39.31**	-2.65	-5.96	-20.83*	-14.87
Girl	Time 1	74.17	71.38	-2.79	41.68	41.61	-0.07
	Time 2	39.00	55.13	16.13	10.50	14.36	3.86
		-35.17	-16.25	18.92	-31.18**	-27.25**	3.93

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Number of Children in Household

At baseline, there were more children in control families than program families for both one- and two-parent blacks. The reverse held for unmarried whites. At follow-up, these relations still held, and married whites in the control group had larger families than did their program counterparts.

There were increases over time in family size for single whites in the program and both control and program married whites.

As one would expect, the two-parent families increased in size over the 3-year period more than the one-parent families. There were significantly more children born during this period to white families (both control and program) than to their black counterparts, although black children outnumbered white children in all groups at Time 2 as well as at Time 1.

The amount of program-control nonequivalence at Time 1 suggests the need for caution in interpreting program effects, and at minimum the need to examine the relation of number of children to outcomes. This variable was not found to be of major importance in our baseline analyses, however.

Table 2.12

Number of Children in Household

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	3.45	3.00	-0.45**	3.75	2.86	-0.89**
	Time 2	3.50	2.75	-0.75**	4.00	3.00	-1.00**
		0.05	-0.25	-0.30	0.25	0.14	-0.11
White	Time 1	2.17	2.46	0.29#	2.72	2.66	-0.06
	Time 2	2.25	2.79	0.54**	3.12	2.93	-0.19*
		0.08	0.33*	0.25	0.40**	0.27**	-0.13
White Families Only							
Boy	Time 1	2.50	2.63	0.13	2.80	2.66	-0.14
	Time 2	2.50	3.00	0.50*	2.87	2.91	0.04
		0.00	0.37*	0.37	0.07	0.25*	0.18
Girl	Time 1	1.83	2.13	0.30	2.64	2.67	0.03
	Time 2	2.00	2.38	0.38	3.39	2.94	-0.45**
		0.17	0.25	0.08	0.75**	0.27*	-0.48*

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Age of Target Child

The target child is 3 years older at the time of the second assessment; therefore all effects over time are significant. A not so obvious effect is that target children in white single-parent households were older than the target children in two-parent households. A possible explanation involves the oversampling of white single mothers. Toward the end of Wave I, proportionally more one-parent white mothers were recruited. In black families there were no such age differences by marital status.

The age of the target child varied for control versus program families when the study commenced. In black families, the control children were older than the program children in both one- and two-parent households at Time I. White two-parent control children (girls not boys) were also older than their program counterparts at Time I; however, the reverse situation occurs for one-parent, white households, with the program target children older than their control group counterparts. There is a further difference in program children--female target children were significantly older than the male target children. By Time 2, the age differences for program versus control famlies were no longer significant except in two-parent black families, with the target children in the control group remaining significantly older than the program target children. This relative change in age can only be attributed to shifts in when the second interviews were carried out.

The age of the target child also varied by race, with one- and two-parent black control families having children older than their white counterparts at Time I. This age-by-race difference held at Time 2 for the two-parent control group, but not for the one-parent households. The age difference by race in program families showed the white children in one-parent households older than their black counterparts at Time I and Time 2. There are no age differences by race for two-parent program families at Time I or Time 2.

Table 2.13

Age of Target Child
(In Days)

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	1430	1285	-145**	1416	1297	-119**
	Time 2	2389	2352	-37	2388	2311	-77*
		959**	1067**	108**	972	1014**	42
White	Time 1	1352	1419	67*	1327	1287	-40**
	Time 2	2377	2413	36	2330	2326	-4
		1025**	994**	-31	1003**	1039**	36#

White Families Only:

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Boy	Time 1	1340	1399	59#	1302	1305	3
	Time 2	2347	2416	69#	2323	2339	16
		1007**	1017**	10	1021**	1034**	13
Girl	Time 1	1364	1459	95*	1353	1269	-84**
	Time 2	2407	2408	1	2336	2313	-23
		1043**	949**	-94#	983**	1044**	61*

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

While there is considerable statistical significance for this variable, since it has a comparatively small variance and, by definition, changes over time, it has not been found to be strongly related to our outcomes and we can question whether the mean differences indicated in the table are of "clinical" significance.

Length of Time in Neighborhood

As expected, length of time in neighborhood grew over time. This is most true for two-parent white families, and least true for two-parent black families, indicating more residential mobility in the latter group. At baseline there were significant program-control differences, with program families having been in the neighborhood longer than controls, in the two-parent case, but the opposite pattern existing for single women. These effects carry over to Time 2.

Table 2.14

Length of Time in Neighborhood (In Months)

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	60.30	53.90	-6.40	31.13	73.07	41.94**
	Time 2	78.75	69.35	-9.40	40.50	80.79	40.29**
		18.45#	15.45	-3.00	9.37	7.72	-1.65
White	Time 1	115.50	54.29	-61.21**	68.83	87.90	19.07**
	Time 2	138.33	67.38	-70.95**	89.60	110.53	20.93**
		22.83	13.09	-9.74	20.77**	22.63**	1.86

White Families Only:

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Boy	Time 1	108.00	54.25	-53.75**	62.20	95.63	33.43**
	Time 2	142.00	56.25	-85.75**	87.37	111.60	24.23**
		34.00#	2.00	-32.00	25.17**	15.97#	-9.20
Girl	Time 1	123.00	54.38	-68.62**	75.93	79.70	3.77
	Time 2	134.67	89.63	-45.04*	92.00	109.39	17.39#
		11.67	35.25*	23.58	16.07#	29.69**	13.62

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Mobility

We make the initial observation that self-selection has occurred: the most significant movers have by Time 2 moved out of the sample. Within this framework, we see that the previous 3 years (including assessment period) have been somewhat more stable in terms of mobility than the 3 years prior to baseline. For whites, there is a significantly greater decrease in mobility for those in vs. those not in the program; this effect is especially strong for single mothers. This is consistent with length of time in neighborhood, especially in the case of white, two-parent families.

Table 2.15

Mobility

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Black	Time 1	1.30	1.85	0.55	1.75	0.64	-1.11*
	Time 2	1.10	1.75	0.65#	1.38	0.50	-0.88#
		-0.20	-0.10	0.10	-0.37	-0.14	0.23
White	Time 1	1.58	2.67	1.09**	0.69	0.66	-0.03
	Time 2	1.00	0.67	-0.33	0.38	0.24	-0.14
		-0.58	-2.00**	-1.42*	-0.31	-0.42*	-0.11

White Families Only:

		1-Parent			2-Parent		
		Control	Program	Diff.	Control	Program	Diff.
Boy	Time 1	1.67	2.88	1.21**	0.80	0.54	-0.26
	Time 2	1.50	0.69	-0.81#	0.33	0.17	-0.16
		-0.17	-2.19**	-2.02**	-0.47#	-0.37#	0.10
Girl	Time 1	1.50	2.25	0.75	0.57	0.79	0.22
	Time 2	0.50	0.63	0.13	0.43	0.30	-0.13
		-1.00#	-1.62**	-0.62	-0.14	-0.49*	-0.35

** p $\leq .01$
* p $\leq .05$
# p $\leq .10$

TECHNICAL NOTE 2.2

Demographic Analysis of Program Participation

The measures of program participation described in Section 2.5 have been analyzed as a function of demographic variables. The program variables were analyzed in a model including the factors: race, family structure, and sex of child. Two analyses were done for each variable, the first using only the sample of 126 families who were in program neighborhoods, and the second for the total sample. The first sample is relevant for examining differences in participation rate for families with original program assignment. The second gives an indication of differences in the participation variables when used as continuous measures in evaluating the program itself.

Table 2.16

Sample Sizes for Program Participation Models

Program Families (Total = 126)

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	6	14	20	16	8	24
2-Parent	6	8	14	35	33	68
	12	22	34	51	41	92

All Families (Total = 225)

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	17	24	41	22	14	36
2-Parent	8	14	22	65	61	126
	25	38	63	87	75	162

Total Meetings and Visits

For this measure of program participation, there is an interaction between race and family structure, with the lowest participation rate by two-parent black families and the highest rate by two-parent white families. This effect is somewhat stronger for families in which the target child is a boy.

Table 2.17

Total Meetings and Visits

Program Families

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	15.33	16.64	1.31	18.31	14.88	-3.43
2-Parent	5.83	16.88	11.05	22.17	24.15	1.98
	-9.50	0.24	9.74	3.86	9.27#	5.41

All Families

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	5.41	9.71	4.30	13.32	8.50	-4.82
2-Parent	4.38	9.64	5.26	11.94	13.06	1.12
	-1.03	-0.07	0.96	-1.38	4.56	5.94

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Total Meetings

There is one simple but important result for total meetings participated in: black participation was much lower than white, irrespective of family structure or sex of child. The differences are sufficiently large that an evaluation of the effects of meetings almost certainly cannot involve a comparison of races.

Table 2.18

Total Meetings

Program Families

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	0.67	0.50	-0.17	6.25	3.62	-2.63
2-Parent	0.33	1.12	0.79	4.34	5.64	1.30
	-0.34	0.62	0.96	-1.91	2.02	3.93

All Families

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	0.24	0.29	0.05	4.54	2.07	-2.47
2-Parent	0.25	0.64	0.39	2.34	3.05	0.71
	0.01	0.35	0.34	-2.20#	0.98	3.18

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Total Visits

For total visits, there is no overall difference by race. There is a race-by-family-structure interaction: lowest participation is by single white mothers and two-parent families, while married whites and single black mothers participate more. Participation is significantly higher for married than for single whites. The low participation by married blacks is primarily in those families where the target child is male.

Table 2.19

Total Visits

Program Families

	Black Boy	Girl	Total	White Boy	Girl	Total
1-Parent	14.67	16.14	1.47	12.06	11.25	-0.81
2-Parent	5.50	15.75	10.25#	17.83	18.52	0.69
	-9.17	-0.39	8.78	5.77#	7.27#	1.50

All Families

	Black Boy	Girl	Total	White Boy	Girl	Total
1-Parent	5.18	9.42	4.24	8.77	6.43	-2.34
2-Parent	4.12	9.00	4.88	9.60	10.02	0.42
	-1.06	-0.42	0.64	0.83	3.59	2.76

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Program II Visits

For Program II visits, there is a strong finding of more visits made to two-parent than to single-parent families, and a weaker finding of more visits to families of girls than families of boys. Black families with girls participated in relatively more visits than the other groups, due to the large number of visits to married black parents of girls.

Table 2.20

Program II Visits

Program Families

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	0.33	1.71	1.38	2.38	1.38	-1.00
2-Parent	2.33	7.75	5.42*	3.28	3.12	-0.16
	2.00	6.04**	4.04	0.90	1.74	0.84

All Families

	Black			White		
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	0.12	1.00	0.88	1.73	0.78	-0.95
2-Parent	1.75	4.43	2.68#	1.77	1.69	-0.08
	1.63	3.43**	1.80	0.04	0.91	0.87

** $p \leq .01$
* $p \leq .05$
# $p \leq .10$

Program I Visits

The same essential pattern seen for total visits holds also for Program I visits alone. (Note that Program I visits is a subset of total visits.) The sex-of-child effect in the low participation by married blacks is weaker, however, because proportionally more Program II visits were made to this group than to the other groups.

Many more total Program I than Program II visits were made, and the total visit variable and Program I visits are thus closely related.

Table 2.21

Program I Visits

Program Families

		Black			White	
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	14.33	14.43	0.10	9.69	9.88	0.19
2-Parent	3.17	8.00	4.73	14.54	15.39	0.85
	-11.16#	-6.43	4.73	4.85	5.51	0.66

All Families

		Black			White	
	Boy	Girl	Total	Boy	Girl	Total
1-Parent	5.06	8.42	3.36	7.04	5.64	-1.40
2-Parent	2.38	4.57	2.19	7.83	8.33	0.50
	-2.68	-3.85	-1.17	0.79	2.69	1.90

** p ≤ .01
* p ≤ .05
# p ≤ .10

TECHNICAL NOTE 2.3

Model for Analyzing Homogeneity of Regressions

In this technical note, we give a brief discussion of nonhomogeneous regressions. Details are given in Henderson (1982). Assume for simplicity that there is a single continuous independent variable--for example, the level of joint activity engaged in by the child and the mother. Consider a simple classification structure, with mother's education (less than or equal to 12 years; more than 12 years) and program (control, Program I, Program II) as fixed factors; the logic extends to models with more factors. The child's performance in school is the outcome under examination.

In this model, one question of interest is whether there are mean differences in school performance for children in the 3 program groups or by education groups, adjusting for level of joint activities (the standard analysis of covariance). It is conventional wisdom that the test of mean differences should not be made if the regressions of school performance on activities differ for the program-by-education subgroups. This condition is, however, unnecessarily broad.

It is convenient to work with a subclass means model, with a term for the continuous variable that parallels the term for the means:

$$y_{ijk} = \mu_{ij} + \theta_{ij} x_{ijk} + e_{ijk} ,$$

where y represents school performance, x represents joint activities, μ_{ij} the mean of the $_{ij}$th subclass, θ_{ij} the regression in the $_{ij}$th subclass, and $i = 1, 2, 3$ (for the three program groups), $j = 1,2,$ (for the education groups), $k = 1, ..., n_{ij}$ = the number of observations in the $_{ij}$th subclass. Any hypothesis regarding mean differences can be expressed as a function of the μ_{ij}'s. For example, the conventional main effect for education is a comparison of the unweighted averages over the three levels of program, for each education group.

If we were to write an equivalent model in overly parameterized form, we would have

$$y_{ijk} = \mu + t_i + e_j + (te)_{ij} + (\beta + \beta_{t_i} + \beta_{e_j} + \beta_{(te)_{ij}})x_{ijk} + e_{ijk} ,$$

where μ denotes the intercept, e_j the levels of education, t_i the level of program, $(te)_{ij}$ the interactions, and where there are regressions corresponding to each of these classification effects. Any hypothesis regarding terms in this second model can be expressed in terms of a hypothesis regarding the μ_{ij} and θ_{ij} of the first model.

There is a sufficient condition for any test of mean differences to be valid in the sense that it is invariant to the mean value of the covariates. This condition is that the same function of the θ_{ij}'s that is of interest for the μ_{ij}'s not differ significantly from zero. The condition can be fulfilled for any given test, even though there are other differences among the regressions. For any test of interest regarding the μ_{ij}, the parallel test of the θ_{ij} should be made in order to determine the validity of the former.

Often our primary questions of substantive interest can be expressed in terms of whether the regressions (the θ_{ij}'s) differ. We are interested in, for example, the question of whether the relation between school performance and joint activities is the same for program and control families, and for children of mothers with less versus more education. Thus, the model that tests for mean differences (and examines the validity of these tests) also provides the information needed to study this other type of question.

We can summarize the analysis in this example in the following type of table. E denotes education, T denotes program status, and the β's denote regressions that are functions of the θ_{ij}'s corresponding to the functions of the μ_{ij}'s represented in the first seven lines of the analysis. The three levels of program are partitioned into T_A (control vs. I) and T_B (control vs. II). β_μ is an overall regression averaged over all ij.

The tests associated with lines (8) through (15) are of interest themselves, as indicated for β_E (line 12) above. The tests of mean differences in each of lines (1)-(7) are valid if the respective tests in lines (9) - (15) are nonsignificant.[9]

Source	d.f.	MS	F	probability
(1) T	2			
(2) T_A	(1)			
(3) T_B	(1)			
(4) E	1			
(5) TE	2			
(6) T_AE	(1)			
(7) T_BE	(1)			
(8) β_μ	1			
(9) β_t	2			
(10) β_{t_A}	(1)			
(11) β_{t_B}	(1)			
(12) β_e	1			
(13) β_{t_e}	2			
(14) $\beta_{t_A e}$	(1)			
(15) $\beta_{t_B e}$	(1)			
(16) Within	$n_{..} - 12$			

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[9] If the test regarding the regressions is significant, a test of mean differences can still be carried out for any specific covariate value.

CHAPTER 3

SCHOOL PERFORMANCE AND ADAPTATION

Charles R. Henderson, Jr.

One of the primary goals of the program intervention -- even if indirect -- was to facilitate the child's interaction with and performance in school. The program in part attempted to foster communications between the parents and the teacher, primarily through discussions with the parents. Results relating to this attempt are discussed in Chapter 5. In addition to this explicit focus on the school, many of the program activities were aimed at improving the child's cognitive skills. It is the cognitive performance outcomes, as well as measures of the child's work habits and interpersonal relations at school, that are examined in this chapter.

Our study for the National Institute of Education concerned the "ecological forces affecting children and families during a period of transition from home to school." One of the questions we proposed to examine was how the program influenced the natural ecology outside and within the family, as well as relations between home and school, so as to affect the child's performance and behavior in school. The first step in this process is to determine to what extent there are program effects for the school outcomes, and that is the primary topic of this chapter. Hypotheses I and II of the NIE renewal proposal (Cochran, 1980) state that school performance will be enhanced by linkages between the home and school and by joint activities involving some degree of complexity engaged in with the child by family members. In addition, Hypothesis III states that the effectiveness of the family as a childrearing system--and implicitly the child's performance in school--is enhanced by the existence of a supportive social network. These 3 links are explored in subsequent chapters. Directly involved in the current and subsequent chapters is the consideration of whether program effects differ for families of contrasting sociodemographic backgrounds, as stated by Hypothesis VI.

The organization of this chapter is as follows. First, the outcome variables are described. This is followed by discussions of the program specification, samples used in analysis, and issues of validity. The models and results are then presented for the public school children. The chapter concludes with some alternative and refined models, clarifying (or raising questions about) the primary findings, and a discussion of the results.

3.1 SCHOOL OUTCOME VARIABLES

The data on school performance and adaptation that are available to us for analysis come from 2 sources: school records, including the report cards for the first 3 marking periods of the 1981-82 school year (when the majority of the project target children were in the first grade), attendance records from the report card, and information on the child's assignment to special education, remedial help, or being retained in the same grade; and a set of questions (called the Teacher Survey) prepared by the project and completed by the teachers of each project child in April through June of 1982. We also interviewed the parents to obtain their perspective on the school situation. These data from parents are used in a subsequent chapter on home-school communication (Chapter 4). In the current chapter, brief attention is given to one Parent Interview variable, the parent's report of how the child feels about school.

The Teacher Survey was given in identical form to all teachers, except that a different version was used for children in kindergarten. The data from this source are nearly complete; 7 teachers did not complete the survey, in some cases because parental permission was not given. The report cards did not have identical formats for all children in the sample: kindergarten report cards differed from those used in the first and second grades; there were 2 public-school formats; and private-school report cards had their own format. The project asked private-school teachers to transform the grades they had given to the format of the more prevalent public-school form. Thus, we were able to confine attention to this form only. To provide comparability across the total sample, we eliminated from consideration items for which there was no obvious match for all school types. Then, for variables for which the grading scale was not identical, we carried out transformations to put all grades on a comparable basis. One public-school format in grades 1 and 2 has a range of grades from A+ to F, with 15 possible points; the second marks in terms of "very good progress,". . . , "little progress." The kindergarten grades used a similar qualitative rating. Kindergarten marks and the second format of grades 1 and 2 were mapped onto the 15-point scale, with "satisfactory progress," for example, given a 7, providing reasonable comparability across all children.

Some variables are scales composed of 2 or more of the original Teacher Survey or report card variables. These are constructed as the average of the items in the scale. When the proportion of items with missing data exceeded a prespecified value (usually .30), the scale itself was assigned a missing data value. Variables with a large number of cases missing were excluded a priori.

The selection of individual variables and the construction of scales were based on analysis of correlations between variables, content validity, and a sequence of preliminary analyses of variance and covariance. The reduced list of variables that was then subjected to intensive analysis to examine program effects is presented in Table 3.1. Most variables on this list are not included in the results section; instead, we have selected the most important and those that best illustrate common patterns of results.

The variables can be organized into several general categories: measures of the child's cognitive development, cognitive motivation and work habits, and social and interpersonal characteristics; objective measures of the school's decision to have the child repeat a grade or be given remedial attention; and a small group of miscellaneous variables such as attendance and a grade for physical education.

Table 3.1

School Outcome Variables

Cognitive Development

V134	Report card average
V171	Average reading marks
V172	Average math marks
V173	Average language, English, spelling, social studies, science marks
V174	Average handwriting, health, art, music, physical education marks
V177	Sum of reading, math, language, English, etc. (171 + 172 + 173)
V395	Report card language
V397	Report card hard science total
V92	Reading -- 1st report card
V93	Reading -- 2nd report card
V94	Reading -- 3rd report card
V96	Math -- 1st report card
V97	Math -- 2nd report card
V98	Math -- 3rd report card
V91	Current reading level
V99	Vocabulary understanding (without kindergarten cases)
V100	Creates stories
V101	Can tell simple story
V102	Shows auditory skills
V197	Language sum (99-102)
V198	Language and report card reading scores (V99-V102, V92-V94)
V199	Language and average reading mark (V99-V102, V171)
V389	Language 2 (99, 102) (without kindergarten cases)
V391	Vocabulary understanding
V392	Can tell a simple story
V393	Shows auditory skills
V394	Language 3 (391 + 393)
V396	Report card language and vocabulary and auditory skills
V195	Creativity
V281	Cognitive development sum (V91-V94, V96-V99, V102)
V410	Cognitive development problems
V414	Cognitive development problems and behavior problems and attendance problems
V400	Report card English and vocabulary and language
V401	Verbal language
V402	All language

Cognitive Motivation and Work Habits

V288	Cognitive motivation sum
V175	Work and study skills evaluation
V282	Cognitive development
V180	Cognitive motivation minus self-confidence
V179	Time on task measures
V103	Follows directions -- 3rd report card
V105	Sufficient attention span
V124	Attempts new tasks
V125	Confidence

Table 3.1 (continued)

Social and Interpersonal Characteristics

V176	Social behavior
V289	Relationship with teacher
V290	Social maturity
V196	Social maturity 2
V390	Social maturity 3
V110	Helpful
V111	Manners
V112	Meets demands of general social behavior
V113	Expresses dissent in socially acceptable manner
V114	Solves own problems
V115	Sticks up for self
V106	Interaction with classmates
V127	Truthful
V398	Social maturity 4
V399	Social maturity 5
V283	Interpersonal relations
V284	Personal adjustment
V181	Social maturity minus self-confidence
V182	Self-confidence
V117	Takes responsibility
V118	Behaves well in school
V119	Happy
V120	Can have fun by self
V129	Frequently expresses own ideas
V412	Behavior and emotional problems

Remedial Help or Repeating Grade

V136	Remedial help in 1982
V137	Remedial help in 1981 or before
V138	Retained in 1982
V139	Retained in 1981 or before
V140	Retained or special education in 1982

Miscellaneous and Across Domain Summary Variables

V135	Child's attitude about going to school
V133	Number of days absent
V130	Physical education -- 2nd report card
V126	Keeps self clean
V285	Teacher Survey total
V286	Teacher Survey and report card

3.2 THE SPECIFICATION OF PROGRAMS IN MODELS FOR ANALYSIS

As described in Chapter 2, the single greatest effort made in the evaluation was the attempt to understand the most appropriate way to specify programs in our models for analysis. The central focus was the models for the evaluation of school outcomes.

There are 3 primary measures of program participation (the number of group meetings, the number of Program I home visits, and the number of Program II home visits) as well as the original nominal assignment of the family on the basis of neighborhood of residence to 1 of 3 program statuses (control, Program I, and Program II). Specifying the program status of each family is made more complex by the merger of the 2 original programs at the approximate midpoint of the program effort, with each family having the option to choose either, both, or neither of the original program formats. Even if we set aside amount of program participation, this produced too many groups to be analyzed, with our sample size, while still including other important variables (Program I before, Program I after; Program I before, Program II after; Program I before, Program I and II after; etc.). In addition, we have concluded that there are issues of self-selection involved in families' decisions about how to participate, particularly as a function of sociodemographic characteristics and the parents' perception of the child's need for help.

We evaluated a wide range of models that divided the families into program groups based on amount and type of participation--both taking into account and ignoring nominal assignment--but ultimately rejected these models, concluding that artifacts resulting from self-selection and sociodemographic nonequivalence were dominating any program effects. The final decision thus became one of whether to work with the original 3 nominal levels or to collapse nominal I and II, recognizing that each contained a mixture of families with minimal participation, Program I only, Program II only, and both I and II. In either of these specifications, we retained the option of including measures of level of participation as covariates.

We carried out many analyses of school outcomes in the 3-level model. Initially, there appeared to be differences between Program I and II, but after appropriate demographic controls, they were largely eliminated. (Mother's education is higher in Program I than in Program II, for example.) This conclusion, and the fact that the 2 groups are not at all distinct in their patterns of participation in the 2 types of program activities, argued persuasively in the end for the 2-level variable, contrasting nominal assignment to the control condition with a simple program specification combining the 2 original program conditions. The coherence of results for school outcomes is greatest using this approach, and this specification is used throughout the report.

3.3 EXCLUSIONS FROM SAMPLE AND ISSUES OF COMPARABILITY

We consider here 2 issues that relate to the comparability of the groups to be evaluated for program effects. These issues are of concern in the analysis of school outcomes but are of minor importance for other outcomes reported in subsequent chapters. Six of the 225 target children available for analysis at Time 2 were classified by the schools as being in special education. These children have conditions ranging from learning disabilities to Down's syndrome. In all cases, they were not graded by the standard criteria, and we cannot assume that the teacher in response to the Teacher Survey used the same criteria for those children as for others. Therefore, a decision was made to exclude these cases from the analyses in this chapter, from the home-school communications analyses of Chapter 4, and from the chapters linking school outcomes to other variables (Chapters 5 and 7).

At the time of the Wave II data collection, the majority (188) of the children were in the first grade; 15 were in second grade, and 22 were in kindergarten. The target age at the time of the original sample recruitment was 3 years, but this constraint was occasionally relaxed in both directions in order to obtain sufficient samples in certain neighborhoods; the age range at time of recruitment was 2 years, 9 months to 4 years, 9 months. This range in age causes few complications for variables other than school outcomes, so long as we thoroughly investigate the need to adjust for the effects of age. In the case of school outcomes, there is the possibility of differences by grade that are structural. The approach taken in variable construction to ensure comparability of measures across grades was discussed above. The possibility remains, however, that performance will differ by grade and that program effectiveness will not be uniform for each grade.

To investigate these issues, we carried out analyses of the school variables in models that included grade level, program, and the other important model factors. This required a series of runs, since not all of the other variables could be included simultaneously. The results of these analyses showed a general trend for higher scores to be given to kindergarten than to either first or second grade children--for both program and control. We did not pursue this finding, but presumably the teachers are using a somewhat different standard in evaluating children in kindergarten. The crucial finding, however, was that there were no interactions of grade with program (and virtually none with other factors). In addition, the distribution of grades across the program groups is uniform. Thus, we were able to eliminate grade level from consideration in the analyses that are given in this report.

3.4 INTRODUCTION TO RESULTS

One of the primary limitations of an analysis of school outcomes is that there are no measures at Time 1--the children were not yet in school. Also, we were not able to obtain IQ scores or other "objective" standardized measures of ability. While such standardized measures should always be used with caution, they would have been of great assistance to us in evaluating the effects of the program. In our analyses, it is difficult to determine with certainty whether control-program differences are actually the result of the program as opposed to initial nonequivalence. The problem is exacerbated by the relatively small subclass sizes that are unavoidable in our models as we attempt to adjust for the influence of factors that we know have importance. We attempt to deal with the issue of nonequivalence by making complete model formulations, examining all important sociodemographic variables, since these variables may be the cause of the nonequivalence and can be adjusted for in the models. While we have uncovered no evidence to suggest problems of nonequivalence, the potential still exists that our groups are nonequivalent on variables that we have not measured, particularly innate ability.

The absence of premeasures (and the possibly related lack of coherence of results in models with a more detailed program specification) contributed to the decision to work with the simple 2-level program variable. A few real findings may be missed in this approach, but the results that do emerge should be more stable and freer of artifact.

We turn now to a discussion of the models used to obtain the primary results in this chapter. In the analysis of school data, we became aware of the importance of distinguishing public and private schools: the patterns of results are quite different for these 2 groups. Later, we consider a model that includes a factor to compare public and private schools. Because positive program effects are seen most clearly for children attending public schools and because the private sample is smaller than the public, restricting the variables that can be included jointly, the first basic set of results is given for the public-school sample only, for which we can have a more fully specified model (more categorical variables) with larger subclass sizes.

In this analysis, program (control vs. program), race (black vs. white), and family structure (one- vs. two-parent families) are the primary classification factors. These factors are denoted T, R, and P, respectively. One set of analyses considered simply those variables and their interactions. It is also important to bring in a measure of socioeconomic status that is available and valid for the entire sample under consideration. We know that children from families of higher SES perform better in school than do those from lower SES backgrounds. Since the sample is not uniformly distributed by SES across race, family structure, and program groups, controlling for SES is important. Previous work with baseline data indicated that mother's education is our best measure; preliminary analyses of school data confirmed this. We looked at a model including T, R, P, and mother's education in continuous form as a covariate, with regressions specified separately by the smallest model subclasses. Across the broad range of outcomes considered in this chapter, this analysis showed consistently nonhomogeneous regressions (regressions that differed by the TRP subclasses). While there are methods to proceed in this circumstance (see Henderson, 1982), in the current case the complexity in doing so is considerable and the gains are minimal. To avoid detracting from the central purpose of the chapter, these methods are not pursued. An alternative model, one that proves to be quite revealing of patterns in the data, is to include mother's education categorically, denoted by M, with 2 levels ($\leq$ 12 years, > 12 years). Further analyses examined the continuous education variable in the TRPM model, with separate regressions specified for the 8 TRP subclasses.

The subclass sizes for the public sample (excluding special education cases) defined by program, race, family structure, and mother's education are shown in Table 3.2.

Table 3.2

Public School Sample by Program, Race, Marital Status, and Mother's Education

		Control		Program	
		Black	White	Black	White
Single	Low Ed.	13	8	16	17
	High Ed.	2	3	2	2
Married	Low Ed.	5	18	7	25
	High Ed.	3	18	2	23

Other variables were also examined in the context of this basic public-school model. Sex of the child was included instead of mother's education. In this model, the primary results held up; further, there were remarkably few main effects by sex, and virtually none that interacted with programs. Therefore, these results are not reported. A brief discussion of results for runs controlling for other sociodemographic variables is given below, but, in summary, the overall patterns presented in the next section are maintained.

The sample of 2-parent white families is considerably larger than the other 3 race-by-family-structure groups, and, from separate analyses of this group, we are able to obtain more precise estimates, with finer subdivisions by other factors. Some results from this approach are included below.

We have mentioned the public-school/private-school distinction. For the public schools, it is also possible to distinguish school districts. Two major groupings are possible: district 1 (city schools) vs. districts 2-8 (suburban schools). The layout for race by public/private by district can be seen in Table 3.3. Since the private schools cross over district boundaries, the most sensible way to look at the effect of district is to restrict attention to public schools. Since there is only 1 black family in the public schools suburban districts, we examined a model with 3 levels: city black vs. city white vs. suburban white. This factor, of course, replaces race in our basic models. Results from this model are given after the main results section. There is some tendency for the program effects to be stronger in the suburbs than the city, for the white component of the sample.

Public and private schools were also compared, making no distinction by district. The number of children in nonparochial private schools is very small, as can be seen in Table 3.3, and these other private schools are of a variety of types (for example, Faith Heritage and Jowonio), each different, empirically and by definition, from both parochial and the public schools. Therefore, we chose to exclude these schools from the analysis, giving a direct public-parochial comparison. This factor is denoted by C. The basic model for those analyses was TRPC. We will sometimes refer to the parochial schools simply as private, and for the remainder of the report the terms are to be regarded as interchangeable.

The statements of findings to be presented in this chapter are based on tests that are significant at the .10 level or better, unless otherwise indicated. That is, every assertion

Table 3.3

Sample Sizes by School Type, District, and Race

	Public		Parochial	Other Private
	City District	Suburban District		
Black	51	1	9	1
White	62	52	37	6
Total	113	53	46	7

Special education cases excluded

made in the text, even without an explicit reference to a table and a probability, is significant at the .10 level or better. The tables of results give explicitly probabilities that are significant at the .20 level or better for any tests shown by the table configurations. A caution is important at this stage, however. Results are reported in the language of program children scoring higher or performing better than the controls, for certain family types, with the sense that the program produced the differences. While this causal process may in fact exist, at this stage we are simply reporting group differences, which could be due to something other than the program itself. We have not been able to eliminate the apparent program effects by adjustment for sociodemographic variables, but this process will continue beyond the scope of this report. In addition, we reemphasize that we have no adjustment for innate or initial ability.

The discussion section will return to the issue of whether the program could have produced the apparent effects. A reason for our caution, however, is the following: we have not been able to demonstrate any relation between school outcomes and level of participation in the program, even for those outcomes and family types for which we show program effects. Subsequent chapters examine the relation of school outcomes to parent-child joint activities, amount of home-school contact, and social network size and composition, 3 broad domains the program was designed to alter and through which the program could have had an effect on the child's school performance.

3.5 RESULTS FOR THE PUBLIC SCHOOLS

Main effects by race, family structure, and education are considered first. (These effects are averaged over levels of each of the other factors, including programs.) Across a considerable range of variables, including both cognitive and interpersonal outcomes, children from two-parent households perform better than those from single-parent homes. Examples include most of the report card variables, and the interpersonal relations scales. Out of the 81 primary variables analyzed in the final models, 37 differed significantly at the .10 level or below. A number of others were significant before adjustment for mother's education. Twenty-seven of the 81 variables showed children of higher-educated mothers performing significantly better than those from the lower-maternal-education group. These variables were even more heavily concentrated in the cognitive performance area than those showing family-structure effects. The results for race are interesting. Only 5 of the 81 show effects by race, with whites outperforming blacks. Four of these are cognitive variables. Before control for mother's education, however, 37 differed significantly, with several others just over the .10 level of significance. This is added confirmation of the importance of adjusting for a measure of socioeconomic status, and the power of the control for education. We give no further attention in this report to these results; the focus is exclusively on program differences, which are, of course, most typically seen in interactions with the 3 sociodemographic factors.

There are 3 overall program findings, statistically significant across a number of variables, that emerge from the school data. We find, first, strong and reasonably coherent positive program effects for children in the public schools from two-parent families (across both race and both education groups) and for children from lower-SES families, as measured by mother's education (across race and family-structure groups). This pattern of results means that the effects are typically strongest in more narrowly defined groups -- for example, two-parent families in which the mother has lower education (the program effect for this group is significant for a high proportion of all variables). The general pattern of results holds strongly for the measures of cognitive development, but also for certain other variables. The effects for any given variable may be concentrated more in one race than the other, but the pattern is strong enough across races to justify labeling results as main effects, substantively as well as statistically. Here we are using the term "main effect" somewhat loosely since the effects are still at the level of an interaction, or alternatively, a main effect for a subgroup such as two-parent families. For some variables, the program main effect for the entire sample is statistically significant.

The second overall pattern is one of negative program effects for selected noncognitive variables for children from white, single-parent, higher-maternal-education families. This strong effect often produces statistical significance at the level of single-parent whites, higher-educated whites, and even all whites and all higher-educated mothers. But these differences result from the dominant effect of the single cell. There are only 2 program and 3 control cases in the cell (see Table 3.2). A qualitative examination of these 5 families produced a clear explanation for the negative effects. In both program families, the parents had divorced between baseline and follow-up data collection, and both had severe financial problems and problems involving the ex-husband. One sibling was autistic. There were no similar problems in the 3 control cases. Thus we report that these results exist, but give them no great emphasis. If we use a procedure that tests a hypothesis based on weights determined by the subclass sizes rather than weighting each subclass equally--or, alternatively, if we remove the factor M from the model--these negative effects are largely eliminated. We discuss below those effects that remain.

The third major pattern involves the comparison of public and parochial schools. The positive program effects do not hold as strongly in the private schools; there is a tendency for negative program effects for the private-school sample, but this effect is largely limited to two-parent white families in which the mother has low education. The analysis of these data will be presented in a separate section below.

3.5.1 Cognitive Development

As listed above in Table 3.1, the cognitive development variables come primarily from the report cards, but we also have information, mainly on language development, from the Teacher Survey. The pattern of positive program effects, particularly for two-parent families and for lower-SES families (mother's education $\leq$ 12 years), is seen most strongly in the report card evaluation of the core subjects of reading, language, math, and science, as opposed to subjects such as music and health or the work habits or social behavior ratings. The pattern is also seen in the vocabulary/language Teacher Survey variables. For the cognitive variables, we show means in the TRP subclasses (averaged over M) and the TPM subclasses (averaged over R). We also show the program contrast for the lower-maternal-education group, the two-parent group, and for the entire public-school sample. The significance level for the program contrast, when significant at .20 or below, is shown for each row of the table. This array of means depicts the significant patterns in the data.

The average report card score for the core subjects (V177) is shown in Table 3.4. Note that the program contrast is significant for the overall main effect, for blacks (not shown), for two-parent families, and for low maternal education, as well as for many of the subclasses that contribute to these effects (e.g., two-parent blacks, two-parent whites). Exhibiting the same pattern are the report card reading (V171), math (V172), language and science (V173) scores, the components of V177. These 3 variables are given in Tables 3.5-3.7. The other-subjects variable (V174) including music, health, and handwriting, shows a similar but weaker pattern. That the report card grades are not simply a response set is indicated by this variable and, especially, the work habits (V175) and social behavior (V176) variables discussed below; the latter 2 do not have the pattern seen for cognitive variables. Table 3.8 presents the average report card score (V134), comprising the variables discussed in this paragraph.

Table 3.4

Reading + Math + English marks (V177)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	26.85	27.94	1.09	
	Married	26.13	31.34	5.21	.15
White	Single	27.00	29.06	2.06	
	Married	29.41	32.89	3.48	.02
Single	Low Ed.	25.57	26.27	.70	
	High Ed.	26.27	30.72	4.45	
Married	Low Ed.	24.71	30.48	5.77	.01
	High Ed.	30.82	33.75	2.93	
	Low Ed.	25.14	28.37	3.23	.03
	Married	27.77	32.12	4.35	.03
	Overall	26.85	30.31	3.46	.03

Table 3.5

Average reading marks (V171)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	7.52	8.78	1.26	
	Married	7.99	10.22	2.23	.09
White	Single	9.24	8.86	-.38	
	Married	9.74	11.16	1.42	.01
Single	Low Ed.	8.18	8.34	.16	
	High Ed.	8.57	9.30	.73	
Married	Low Ed.	8.01	10.08	2.07	.01
	High Ed.	9.72	11.29	1.57	.18
	Low Ed.	8.10	9.21	1.11	.03
	Married	8.86	10.69	1.83	.01
	Overall	8.62	9.75	1.13	.05

Table 3.6

V172 Average math marks (V172)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	8.60	9.47	.87	
	Married	8.92	10.00	1.08	
White	Single	8.76	10.22	1.46	
	Married	9.61	10.88	1.27	.04
Single	Low Ed.	8.56	8.91	.35	
	High Ed.	8.81	10.77	1.96	
Married	Low Ed.	7.87	10.13	2.26	.01
	High Ed.	10.66	10.75	.09	
	Low Ed.	8.21	9.52	1.31	.03
	Married	9.26	10.44	1.18	.14
	Overall	8.98	10.14	1.16	.07

Table 3.7

Average Language, English, Spelling, Social Studies, and Science Marks (V173)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	8.73	9.66	.93	
	Married	9.22	11.14	1.92	.10
White	Single	9.01	9.97	.96	
	Married	10.11	10.86	.75	.11
Single	Low Ed.	8.84	9.01	.17	
	High Ed.	8.91	10.62	1.71	
Married	Low Ed.	8.84	10.26	1.42	.05
	High Ed.	10.49	11.74	1.25	
	Low Ed.	8.84	9.63	.79	.09
	Married	9.66	11.00	1.34	.03
	Overall	9.27	10.41	1.14	.02

Table 3.8

Report card average of all marks (V134)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	8.70	9.34	.64	
	Married	9.24	10.63	1.39	
White	Single	9.02	9.43	.41	
	Married	9.91	10.77	.86	.07
Single	Low Ed.	8.69	8.85	.16	
	High Ed.	9.04	9.92	.88	
Married	Low Ed.	8.84	10.35	1.51	.03
	High Ed.	10.31	11.04	.73	
	Low Ed.	8.76	9.60	.84	.07
	Married	9.57	10.70	1.13	.07
	Overall	9.22	10.04	.82	.10

The Teacher Survey variables that show the pattern most strongly are vocabulary (V391) and auditory skills (V393); see Tables 3.9 and 3.10. A summary variable combining English/verbal evaluations from the Teacher Survey and report card sources is V199, shown in Table 3.11.

An important variable that summarizes a range of cognitive domains is the count of the number of areas in which the child is viewed as having cognitive difficulties (V410). Drawing from all sources, each child was given a score of 1 for each source for which his or her performance fell below a prespecified level, and the number of such areas was counted. Thus, unlike other variables, a high score indicates poorer rather than better performance. The cognitive difficulties variable is shown in Table 3.12.

The only variable from the Parent Interview that we discuss in this chapter is how the child feels about going to school (V135), Table 3.13. It has a pattern of mean differences similar to the cognitive variables. It is interesting, however, that directions are reversed: those program children (for example where the mother's education is low) who are performing better than controls, based on teacher evaluations, are reported by their parents as less happy about school. The reason for this result is not obvious. It could be that a mechanism of the program that may have aided the parents in developing their children's cognitive skills also produced greater expectations and anxiety in the parents, which they attribute to the child; or there may be real anxiety on the part of the child, even while performing better.

We also have a series of variables related to the child's being retained in a grade or assigned to remedial help. While there are significant effects for these variables, the incidence of occurrence is low, and significance can be produced largely by one or a few cases. At some time these variables can be analyzed by logistic linear model methods, giving more reliable tests of effects, but these analyses are not given in this report.

Table 3.9

Vocabulary understanding (V391)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	3.17	2.87	-.30	
	Married	3.23	3.78	.55	
White	Single	3.40	3.43	.03	
	Married	3.39	3.77	.38	.05
Single	Low Ed.	2.98	3.04	.06	
	High Ed.	3.58	3.25	-.33	
Married	Low Ed.	3.04	3.64	.60	.04
	High Ed.	3.58	3.91	.33	
	Low Ed.	3.01	3.34	.33	
	Married	3.31	3.78	.47	.07
	Overall	3.30	3.46	.16	

Table 3.10

Shows auditory skills (V393)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	3.17	2.38	-.79	.09
	Married	2.73	3.39	.66	.16
White	Single	3.46	3.06	-.40	
	Married	3.39	3.55	.16	
Single	Low Ed.	3.05	2.69	-.36	.15
	High Ed.	3.58	2.75	-.83	.15
Married	Low Ed.	2.46	3.34	.88	.00
	High Ed.	3.67	3.60	-.07	
	Low Ed.	2.75	3.02	.27	.16
	Married	3.06	3.47	.41	.10
	Overall	3.19	3.10	-.09	

Table 3.11

Language + average reading mark (V199)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	18.72	17.65	-1.07	
	Married	19.45	25.42	5.97	.07
White	Single	20.83	19.82	-1.01	
	Married	21.13	23.78	2.65	.02
Single	Low Ed.	18.06	18.17	.11	
	High Ed.	21.49	19.30	-2.19	
Married	Low Ed.	17.61	22.11	4.50	.01
	High Ed.	22.97	27.08	4.11	.18
	Low Ed.	17.83	20.14	2.31	.05
	Married	20.29	24.60	4.31	.01
	Overall	20.03	21.66	1.63	

Table 3.12

Cognitive Development Problems (V410)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	3.48	3.17	-.31	
	Married	3.83	2.11	-1.72	
White	Single	3.04	2.20	-.84	
	Married	2.19	1.06	-1.13	.10
Single	Low Ed.	3.60	3.70	.10	
	High Ed.	2.92	1.67	-1.25	
Married	Low Ed.	4.44	1.64	-2.80	.01
	High Ed.	1.58	1.53	-.05	
	Low Ed.	4.02	2.67	-1.35	.04
	Married	3.01	1.58	-1.43	.11
	Overall	3.14	2.14	-1.00	.16

Table 3.13

Child's attitude about going to school (V135)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	3.04	3.28	.24	
	Married	3.73	3.36	-.37	
White	Single	2.94	3.41	.47	
	Married	2.97	2.98	.01	
Single	Low Ed.	2.98	3.03	.05	
	High Ed.	3.00	3.67	.67	
Married	Low Ed.	3.40	2.73	-.67	.02
	High Ed.	3.30	3.61	.31	
	Low Ed.	3.19	2.88	-.31	.09
	Married	3.35	3.17	-.18	
	Overall	3.17	3.26	.09	

3.5.2 Cognitive Motivation

The results for variables concerning work habits and personal characteristics that might be thought to contribute to success in school are interesting in comparison to the cognitive development variables. Relatively few of these variables show anything in the way of a program effect. Typical is the report card work habits variable (V175), Table 3.14, the summary variable from the Teacher Survey (V180), Table 3.15, and time on task (V179), Table 3.16. These tables are given in the same format as those in the previous subsection. No program effects are missed by this method of presentation.

3.5.3 Social Relations

It is the social relations variables for which the only consistent trend of negative program effects is obtained. There are also some positive effects. For most of these social relations variables (see Table 3.1 for a complete list of the variables in this group), there is a negative effect in the white, single-parent, high-education program comparison. There are, however, only 2 program and 3 control families in this group, and for this and other reasons mentioned above the result is not to be given great weight. The differences are so strong that this subclass alone produces lower-order effects, sometimes even for all whites or all families, with higher maternal education. Because of this situation, we have chosen to report an analysis that pools the education subclasses, and the tables present means for the TRP subclasses. Alternatively, we could have weighted the subclasses not equally but in proportion to our sample sizes in carrying out tests of lower-order effects.

The variables that show the negative effects are truthful (V127), interaction with classmates (V106), and helpful to others (V110), 2 of which are given in Table 3.17.

The report card social behavior variable (V176) shows no effects, except for the persistent two-parent, low-education positive effect. This is true for most of the social relations variables. The primary positive program effect can be seen in a social maturity

Table 3.14

Work and study skills evaluation (V175)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	8.14	8.61	.47	
	Married	8.84	10.27	1.43	
White	Single	8.95	8.27	-.68	
	Married	9.52	10.24	.72	
Single	Low Ed.	8.46	8.03	-.43	
	High Ed.	8.62	8.85	.23	
Married	Low Ed.	8.28	10.15	1.87	.04
	High Ed.	10.09	10.37	.28	
	Low Ed.	8.37	9.09	.72	
	Married	9.18	10.26	1.08	.18
	Overall	8.86	9.35	.49	

Table 3.15

Cognitive Motivation Minus Self-Confidence (V180)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	16.50	16.43	-.07	
	Married	18.23	19.68	1.45	
White	Single	18.33	15.46	-2.87	
	Married	19.42	19.96	.54	
Single	Low Ed.	17.00	16.14	-.86	
	High Ed.	17.83	15.75	-2.08	
Married	Low Ed.	17.18	20.15	2.97	.05
	High Ed.	20.47	19.49	-.98	
	Low Ed.	17.09	18.14	1.05	
	Married	18.82	19.82	1.00	
	Overall	18.12	17.88	-.24	

Table 3.16

Time on Task Measures (V179)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	20.71	21.47	.76	
	Married	25.27	24.04	-1.23	
White	Single	25.02	20.72	-4.30	.11
	Married	25.67	26.12	.45	
Single	Low Ed.	22.65	22.44	-.21	
	High Ed.	23.08	19.75	-3.33	
Married	Low Ed.	23.60	26.18	2.58	.14
	High Ed.	27.33	23.97	-3.36	
	Low Ed.	23.12	24.31	1.19	
	Married	25.47	25.08	-.39	
	Overall	24.17	23.08	-1.09	

Table 3.17

Interaction with Classmates (V106)

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	2.73	2.65	-.08	
	Married	3.00	3.33	.33	
White	Single	3.45	2.95	-.50	.15
	Married	3.30	3.35	.05	

Truthful (V127)

Black	Single	3.20	3.12	-.08	
	Married	4.00	4.33	.33	
White	Single	4.36	3.79	-.57	.01
	Married	4.36	4.52	.16	

summary score (V390) comprising indicators of confidence and happiness. This variable also shows marginal negative effects that are produced by the white, single, high-education group. It is shown in Table 3.18, in the same format as the cognitive variables.

Table 3.18

V390 Social Maturity 3

		Control (T1)	Program (T2)	T2 - T1	prob.
Black	Single	11.85	11.18	-.67	
	Married	13.03	14.29	1.26	
White	Single	14.06	11.47	-2.59	.13
	Married	13.53	15.00	1.47	.04

		Control (T1)	Program (T2)	T2 - T1	prob.
Single	Low Ed.	12.41	12.40	-.01	
	High Ed.	13.50	10.25	-3.25	.14
Married	Low Ed.	11.81	14.71	2.90	.01
	High Ed.	14.75	14.59	-.16	

	Control (T1)	Program (T2)	T2 - T1	prob.
Low Ed.	12.11	13.55	1.44	.04
Married	13.28	14.65	1.37	.15
Overall	13.12	12.99	-.13	

3.5.4 Sociodemographic Controls

Socioeconomic status has been included in our models by the maternal-education factor. Including a continuous measure of education at the overall level in addition to the categorical form does not alter greatly the pattern of results presented so far. Therefore, these analyses are not presented. We have also examined a variety of other sociodemographic variables, including parents' and child's ages, number of children in the family, target-child birth order, income, and mother's hours worked. These analyses have not altered the basic results, but there is sufficient nonhomogeneity of regressions (indicating interactions among the sociodemographic variables and programs or other model factors) to suggest that we are not yet at the end of these explorations. Interactions of program with 3 of these variables, mobility, family income, and maternal work status, are given further attention in sections 3.8-3.10.

3.6 PAROCHIAL VS. PUBLIC SCHOOLS

The primary finding for the public schools is the higher cognitive evaluations of program children than of controls, particularly for two-parent and low-maternal-education families. In the parochical schools, the results are quite different: the overall significance of this effect is weaker, and, for white two-parent, low-maternal-education families, the direction reverses, with control children doing better than those in the program.

Rather than presenting the full array of variables, we show in Tables 3.19 and 3.20 the cognitive difficulties variable (V410) and the report card core subjects (V177), which well represent the general pattern. Because the private sample is smaller than the public, we cannot, except for the two-parent white group, further split the sample by the 2 levels of mother's education. Therefore, 2 models were used to obtain the results shown in the tables: the TRPC model for the entire sample (excluding other types of private schools and the special-education cases) and a TMC model for the two-parent white sample. The subclass sizes are given in Table 3.21.

There is a general trend across most variables for higher scores for children in private schools than in the public schools. There is also a pattern of means, when the

Table 3.19

Total Sample
Cognitive Development Problems (V410)

Public School

			Control (T1)	Program (T2)	T2-T1	prob.
Black	Single		4.20	4.45	.25	
	Married		4.38	1.89	-2.49	.10
White	Single		2.91	2.37	-.54	
	Married	Low Ed.	2.89	1.56	-1.33	.08
		High Ed.	1.50	.56	-.94	

Parochial School

			Control (T1)	Program (T2)	T2-T1	prob.
Black	Single		6.00	1.00	-5.00	.16
	Married		.50	2.00	1.50	
White	Single		.00	1.00	1.00	
	Married	Low Ed.	.67	3.54	2.87	.01
		High Ed.	2.00	.20	-1.80	

Table 3.20

Total Sample
Reading + Math + English (V177)

Public School

			Control (T1)	Program (T2)	T2-T1	prob.
Black	Single		24.48	25.59	1.11	
	Married		25.25	27.92	4.95	.13
White	Single		26.91	27.92	1.01	
	Married	Low Ed.	26.80	31.68	4.88	.01
		High Ed.	32.02	34.11	2.09	

Parochial School

			Control (T1)	Program (T2)	T2-T1	prob.
Black	Single		27.20	31.20	4.00	
	Married		24.20	32.60	8.40	
White	Single		35.90	35.42	-.48	
	Married	Low Ed.	35.52	25.78	-9.74	.00
		High Ed.	32.34	34.04	1.70	

Table 3.21

Subclass Sizes for Public/Parochial Model

			Public School		
			Control (T1)	Program (T2)	Total
Black	Single		15	17	32
	Married		8	9	17
White	Single		11	19	30
	Married	Low Ed.	18	25	43
		High Ed.	18	23	41

			Parochial School		
			Control (T1)	Program (T2)	Total
Black	Single		3	1	4
	Married		2	2	4
White	Single		3	4	7
	Married	Low Ed.	9	11	20
		High Ed.	5	5	10

program-by-school-type interaction is examined, for the control children in public schools to be lower than the other 3 subclasses. For example, for the report card core subjects (V177) we have the following.

	Control	Program
Public	26.51	29.14
Parochial	30.42	31.90

This is an interesting pattern. If there is some self-selection mechanism by which families who are already concerned with their children's education make (or who have more resources to carry out) a decision to send their children to private schools--or, alternatively, if the grading (and other evaluation) in private schools is such that most children are placed at the higher end of the scale--then a situation could exist in which there is relatively less room for improvement to be effected by the program in the private schools. This would explain the greater effect in the public schools.

While this explanation may be valid, in general terms, when we look in detail at more differentiated family types the story is not quite so simple. First, the positive program effect for two-parent blacks remains even for the private schools. Second, for two-parent whites there is actually a negative program effect for families in which the mother's educational level is high school or less. This leads to the program-private group having a mean as low as the control-public group.

3.7 CITY VS. SUBURBAN PUBLIC SCHOOLS

As seen in Table 3.3, there is only 1 black child attending public schools in the suburban districts. The analyses for this section exclude this case and, again, all private school children as well as those receiving special education, giving a model with a 3-level factor (blacks in the city district, whites in the city district, and whites in the suburban districts), denoted by U, as well as program and family structure. We present in Table 3.22 the average report card score (V134); it is adequate to give a sense of the effect of district, but the pattern is not so easily summmarized by a few variables as in the public-private comparison.

Table 3.22

Report Card Average of all Marks (V134)

		Control (T1)	Program (T2)	T2 - T1	prob.
Blacks in City District	Single	8.64	8.43	-.21	
	Married	8.95	10.37	1.42	.16
Whites in City District	Single	10.53	9.37	-1.16	
	Married	10.48	10.61	.13	
Whites in Suburban District	Single	6.94	9.44	2.50	.05
	Married	9.40	10.94	1.54	.02
Blacks in City District		8.80	9.40	.60	
Whites in City District		10.51	9.99	-.52	
Whites in Suburban District		8.17	10.19	2.02	.00

Public-school sample

There are 2 related points of primary interest. The evaluations of the suburban whites, at least for controls, are much like those for city blacks, with the city whites receiving higher evaluations than children in either of the other 2 groups. And, for whites, the greater program effect is in the suburban districts. With account taken of district, the program is seen to have an effect, in the suburbs, not only for two-parent whites but in single-parent families as well. This is more a result of low evaluations for the controls than high evaluations for program families, however; also, these suburban single-parent groups are small, with the controls predominantly from one neighborhood. Therefore, we do not give great weight to this result.

3.8 PROGRAM EFFECTS IN RELATION TO FAMILY MOBILITY

For each family in the study, we determined at follow-up data collection the number of residential moves made during the preceding 4 years. The sample available for analysis at Time 2 is limited to those families remaining in the Syracuse community, so the moves are ones made within this region. This variable is labeled mobility.

We hypothesized that greater mobility might impair program effectiveness and examined school outcomes in the usual model, but now also included mobility with regressions specified separately by program and control. We found, for the cognitive outcomes, essentially flat regressions for controls and negative regressions for the program group, with the difference between the regressions statistically significant. This indicates that for the program families the program was more successful with the residentially stable.

We then reanalyzed the school data in the usual model, restricting the sample to those who moved no more than 1 time. For the residentially stable sample, combining both public and private schools, the pattern of results is very similar to that described above for the public-school sample. When the sample is restricted to public-school children, the patterns are still the same, but the results are significant at lower probability levels.

3.9 SCHOOL OUTCOMES AND FAMILY INCOME LEVEL

An examination of whether adjustment for family income level strengthened or reduced the basic findings in the public-school sample led to the conclusion that there was no great change in the results as given above. Looking at regressions for income by model subgroups itself proved interesting, however. We discuss here the results for the entire sample (both public and private). Across the entire range of school outcomes, there is at least a trend for program regressions to differ from control regressions, with many significant at the .05 level or better. These nonhomogeneous regressions are generally positive for the control families and flat (or even negative) for program families. Thus, as one might expect, greater income--in the absence of any intervention--is associated with better performance by the child in school. But, the data suggest, this is not so for the families receiving the program: the program has apparently buffered the negative consequences of low income.

The regression differences are seen more strongly in certain race or marital status groups for particular clusters of outcomes. But there is 1 primary pattern that obtains for virtually all outcomes: program and control regressions are essentially equivalent for two-parent white families and have the pattern of positive control regressions and flat or negative program regressions for the other 3 race-by-family-structure groups. The test of regression differences for these 3 groups is denoted T† in the tables and figures.

The regression differences are seen most strongly in the noncognitive variables such as interpersonal relations (V283), personal adjustment (V284), social maturity (V390), and cognitive motivation (V180). But similar trends hold for most of the cognitive variables, particularly vocabulary (V391). Table 3.23 and Figures 3.1-3.3 show the regressions for the 8 TRP groups for 3 of these outcomes.

The regression difference for single parents is interesting in 2 respects. This is not a group for which a program effect was found for comparisons of means. Conceivably, the mean difference could have been still less positive from the perspective of program effects had this regression phenomenon not held. See Chapter 5 for a brief discussion of comparisons of means over a range of covariate values.

While the two-parent white sample has a greater range of family income, the regressions for this group when estimated only over the same range of values as exists for

Table 3.23

School Outcomes = f (Income)

		Control	Program	Diff.
Cognitive Motivation (V180)	Black Single	.102 (.66)	-.108 (.58)	-.210 (.49)
	Black Married	.244 (.11)	-.123 (.27)	-.367 (.05)
	White Single	.249 (.26)	-.204 (.28)	-.453 (.12)
	White Married	-.004 (.95)	.010 (.85)	.014 (.87)
	Black	.173 (.21)	-.116 (.31)	-.289 (.11)
	White	.123 (.29)	-.097 (.32)	-.220 (.15)
	Single	.176 (.28)	-.156 (.25)	-.332 (.12)
	Married	.120 (.14)	-.056 (.36)	-.176 (.09)
	Total	.148 (.10)	-.106 (.16)	-.254 (.03)
	$T^{\dagger}$	.199 (.10)	-.145 (.14)	-.344 (.03)
Interpersonal Relations (V283)	Black Single	.244 (.49)	.052 (.86)	-.192 (.68)
	Black Married	.454 (.05)	-.053 (.75)	-.507 (.07)
	White Single	.363 (.28)	-.289 (.31)	-.652 (.14)
	White Married	.003 (.98)	.067 (.41)	.064 (.61)
	Black	.349 (.10)	-.001 (1.00)	-.350 (.19)
	White	.183 (.29)	-.111 (.45)	-.294 (.20)
	Single	.303 (.21)	-.119 (.56)	-.422 (.18)
	Married	.228 (.06)	.007 (.94)	-.221 (.15)
	Total	.266 (.05)	-.056 (.62)	-.322 (.07)
	$T^{\dagger}$	.353 (.05)	-.097 (.51)	-.450 (.05)
Vocabulary (V391)	Black Single	.020 (.65)	-.020 (.59)	-.040 (.49)
	Black Married	.010 (.72)	-.038 (.06)	-.048 (.16)
	White Single	.051 (.22)	-.101 (.78)	-.061 (.27)
	White Married	.016 (.17)	.013 (.21)	-.003 (.83)
	Black	.015 (.57)	-.029 (.17)	.044 (.19)
	White	.033 (.12)	.002 (.93)	-.031 (.26)
	Single	.035 (.24)	-.015 (.56)	-.050 (.21)
	Married	.013 (.39)	-.013 (.27)	-.026 (.17)
	Total	.024 (.15)	-.014 (.32)	-.038 (.08)
	$T^{\dagger}$			

$T^{\dagger}$ = regressions involving all families, except married whites
Table entries are estimated regression coefficients (x 1000) with probability in parentheses.

FIGURE 3.1

COGNITIVE MOTIVATION = F (INCOME)

REGRESSIONS BY TREATMENT, RACE, AND MARITAL STATUS

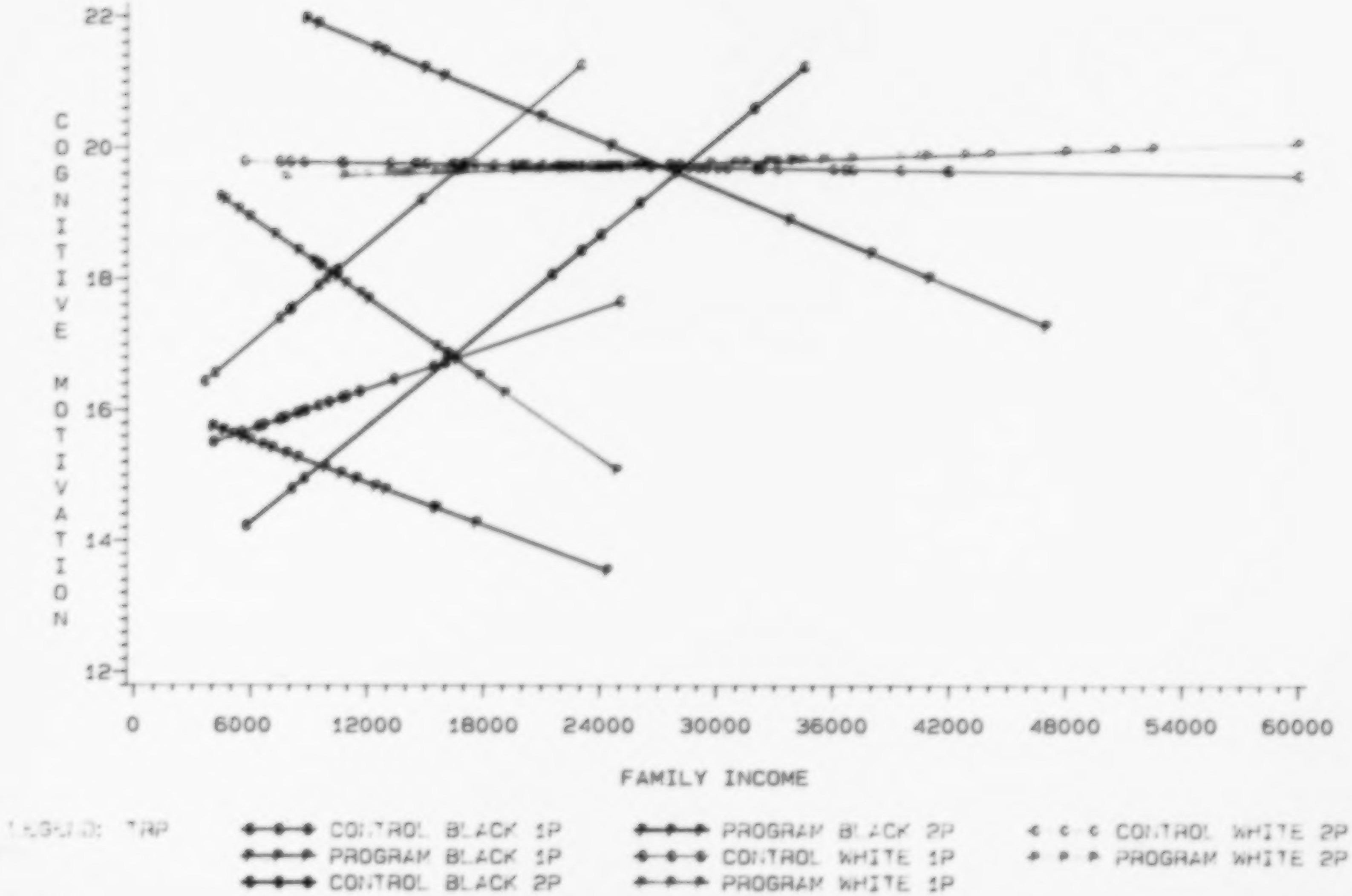

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FIGURE 3.2
INTERPERSONAL RELATIONS = F (INCOME)
REGRESSIONS BY TREATMENT, RACE, AND MARITAL STATUS

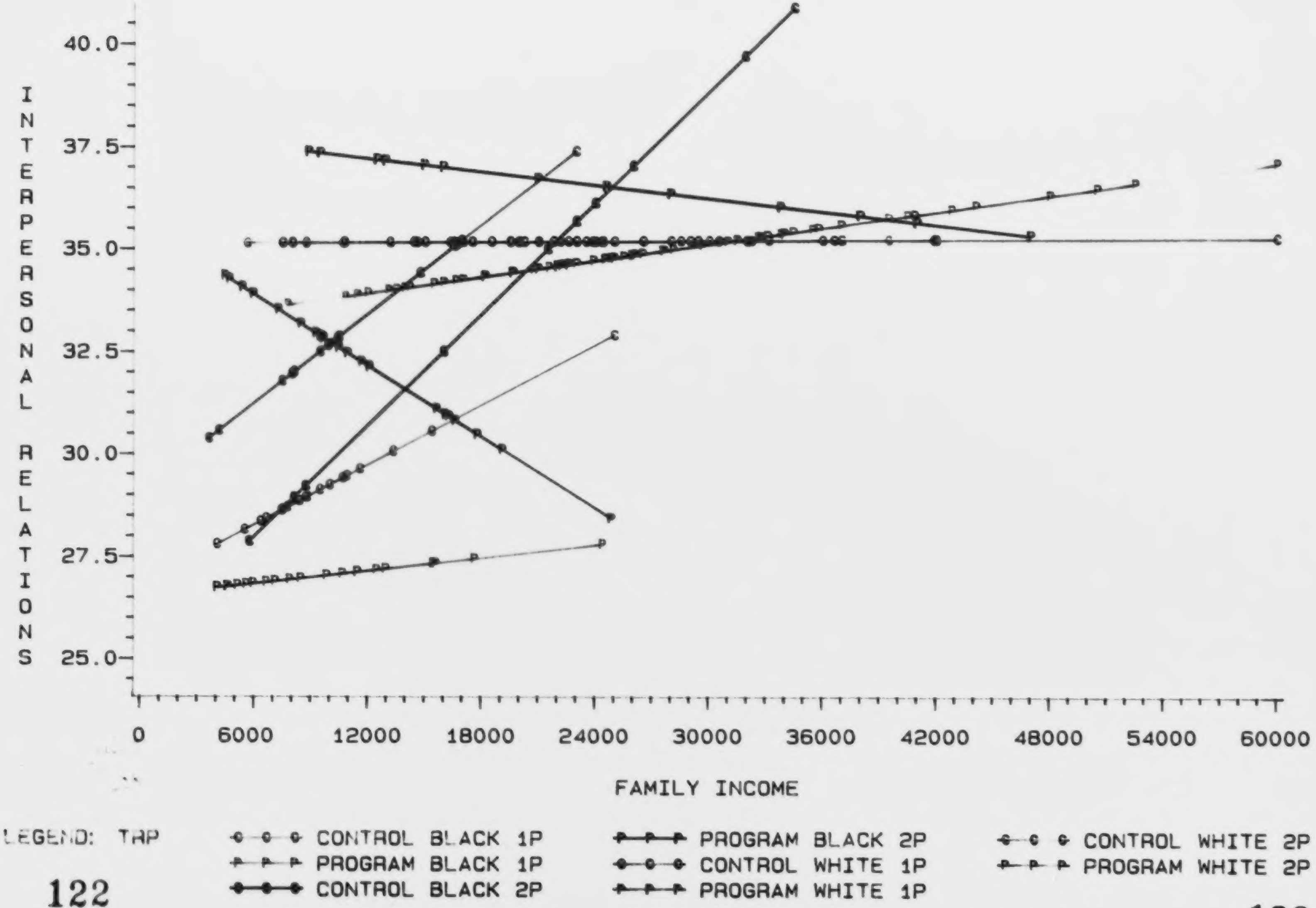
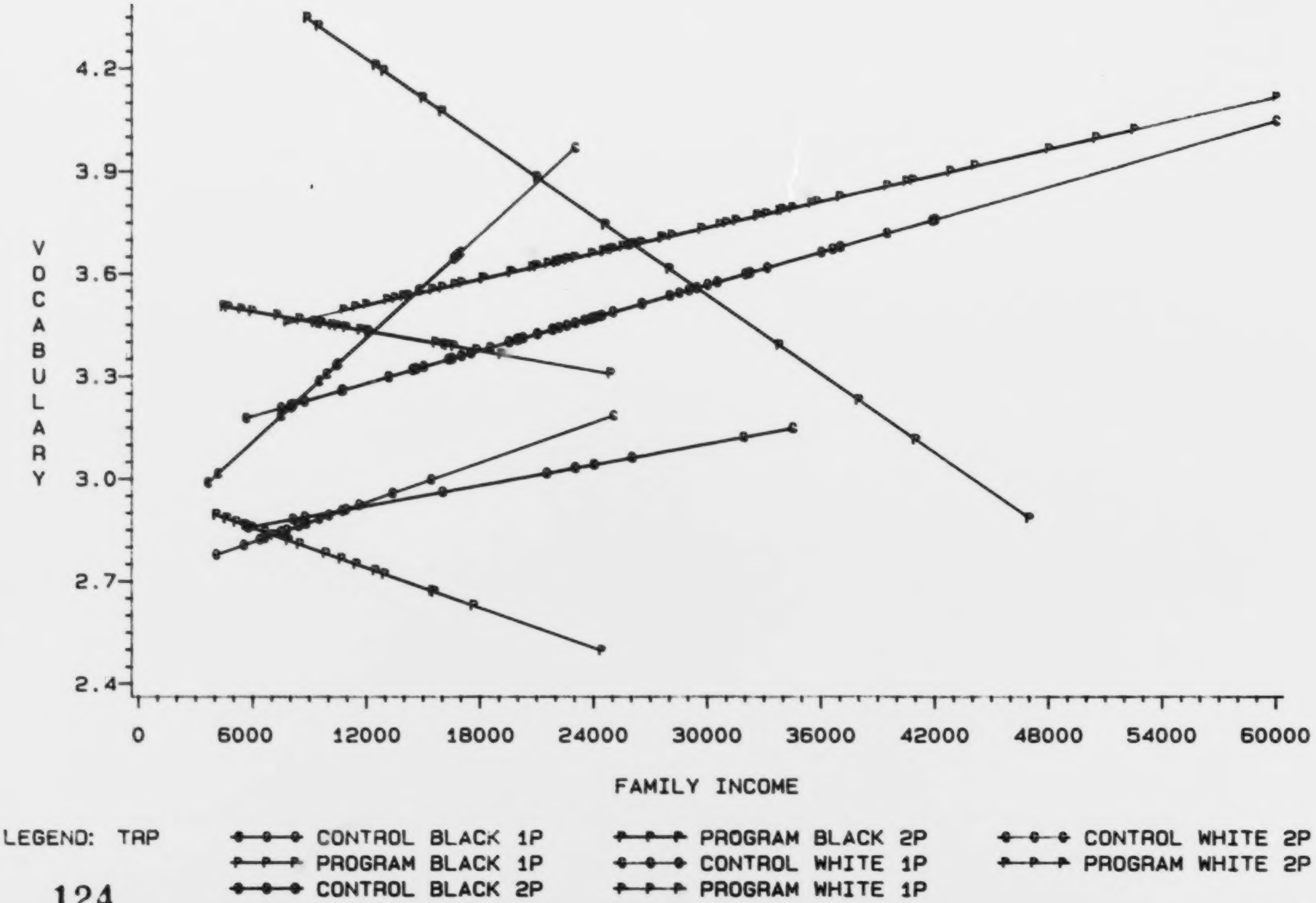


FIGURE 3.3

VOCABULARY = F (INCOME)

REGRESSIONS BY TREATMENT, RACE, AND MARITAL STATUS



the other groups were essentially unchanged. Thus there is some phenomenon other than income range that is involved. The regression patterns are somewhat logical, however. In the two-parent white case, the natural state of affairs appears to be no relation between school performance and income, and thus no program effect. In the other groups, the apparent pre-existing relationship seems to have been altered by the program.

3.10 SCHOOL OUTCOMES AND CHANGE IN MATERNAL WORK STATUS

The results of the previous section suggest a possible buffering by the program of the effects of a stressor -- low income. Change in the mother's work status, particularly the major changes from full-time work to not working or from not working to working full time, would seem to have the potential of adding stress to the family and possibly affecting the child's performance in school. One mechanism for this effect, in the second case, is a decrease in time for interaction between the mother and the child. We have categorized the number of hours worked by the mother into 3 groups: not working (4 or fewer hours worked per week), part time (5-35 hours), and full time (35 or more hours). We have this information for the work situation at the time of baseline and follow-up interviewing. The program implementation took place between these 2 time points.

We wish to examine the 3 work-status levels at Time 1 in comparison to the 3 at Time 2, together with the program factor. To do this we specify, in addition to program, a 3-level work-status factor for each time point. The two-parent white group is the only one of sufficient size to permit this level of partitioning the sample. Even there, the sample is too small to include additional factors such as maternal education, and we cannot separate the public and private schools. The key cells in demonstrating the effects of change, working full time at one time and not working at the other, are very small as can be seen in Table 3.24. To check on the results from this model, we also combined the part- and full-time working categories at each time point, both for the full two-parent white sample and the public-school subset. The results from all of these models were consistent, but need to be interpreted cautiously because of the small number of families involved.

Table 3.24

Subclass Sizes for Work-Status Change in Two-Parent White Sample

		Control			Program		
		Time 2 Work Status			Time 2 Work Status		
		Not	Part	Full	Not	Part	Full
Time 1 Work Status	Not	19	9	4	20	13	6
	Part	1	6	2	2	10	3
	Full	1	5	5	3	3	6

We focus on the interaction of program with Time 1 work status and Time 2 work status, with the latter 2 factors partitioned into single-degree-of-freedom comparisons of the first and third levels (not working and working full time). Thus, if we denote by $W_L^{(1)}$ the Time 1 comparison with weights (1, 0, -1), and similarly $W_L^{(2)}$ for Time 2, then the test of interest is $TW_L^{(1)}W_L^{(2)}$. We also look separately at the $W_L^{(1)}W_L^{(2)}$ interaction for each of T_1 and T_2. In the 2-level work-status models, the comparison is simply $TW^{(1)}W^{(2)}$. We find that this 3-way test is significant for a range of variables, with an interaction pattern holding for controls, but not, or less strongly, for program families. The interaction for controls is one of better school performance for the conditions of no change (not working at both time points or working at both times) and lower performance in the situations of change.

Table 3.25 shows this result on the report card math score (V172) and interpersonal relations (V283). The means are shown in the 3-level work status model, and probabilities are given for the key tests.

In these models, there is an indication that the program has buffered in part the stress of change in life situation. It is another small but consistent finding in support of the positive program effects for school outcomes.

Table 3.25

School Outcomes in the Two-Parent White Sample

Average Math Marks (V172)

		Control			Program		
		Time 2 Work Status			Time 2 Work Status		
		Not	Part	Full	Not	Part	Full
Time 1 Work Status	Not	11.14	9.40	5.60	10.36	10.59	9.10
	Part	14.00	10.43	10.90	12.50	11.80	9.63
	Full	5.70	12.26	10.44	10.27	10.97	10.87

	Control	Program	Interaction
Probabilities for $W_L^{(1)}W_L^{(2)}$ tests:	.00	.38	.03

Interpersonal Relations (V283)

		Control			Program		
		Time 2 Work Status			Time 2 Work Status		
		Not	Part	Full	Not	Part	Full
Time 1 Work Status	Not	37.26	34.00	25.25	36.47	32.92	37.17
	Part	36.00	34.00	38.00	37.00	35.80	30.33
	Full	35.00	33.75	38.80	31.67	37.67	32.17

	Control	Program	Interaction
Probabilities for $W_L^{(1)}W_L^{(2)}$ tests:	.03	.97	.08

3.11 DISCUSSION

The primary program effects have been demonstrated for measures of cognitive development. We consider here to what extent there is a coherent set of findings, or whether we are left with explanations based on artifact and sociodemographic and other characteristics that have not been controlled for in the analyses. As mentioned above, we have no way of knowing the child's innate cognitive abilities or his or her level of performance at Time 1, before the program started. Thus, there is a heavy burden of proof required to be able to attribute empirical differences in means to the influence of the program. It is one that cannot be met completely in this report.

The best evidence of a causal effect of the program would be a positive relation between school outcomes and level of involvement in the program (number of program events participated in), or between school outcomes and something that we can demonstrate has been affected by the program and that can reasonably be thought or demonstrated to affect school performance (for example, number of joint activities involving the parent and child). As will be seen in subsequent chapters, the latter type of supporting evidence is somewhat weak.

We are left with an examination of whether the evidence that is available has any credence. Here we are in a stronger position. While the positive effects are seen for most of the cognitive development variables, the lack of effects in other domains argues against a response set as the explanation. It is also encouraging that, in contrast to the situation for race and family-structure effects, sociodemographic controls do not substantially eliminate the program effects.

We know the program was better implemented in the suburbs than in the city neighborhoods; thus the finding of greater program effects (for whites) in the suburbs makes sense. A related possibility involves differences by race. These differences are not numerous after control for SES (mother's education), but they do exist at the level of raw mean values: we know that virtually all the public-school black children are in city schools and that the highest-scoring group is white children in the city. If, for whatever reason, the teachers have a tendency in city schools to grade whites higher than blacks, this may, on average, push most evaluations of whites--control and program--up toward a grade ceiling, leaving less opportunity for the program to have any demonstrable effect.

There is other tentative evidence for this type of ceiling effect. We have seen that evaluations are higher in parochial than in public schools and that the positive program effects are stronger, and more consistent across family types, in the public schools. One explanation for the latter finding is that grades are already high in the private schools and there is comparatively less room for further improvement by the program. There is evidence from other studies that also shows higher grades in private schools (e.g., Coleman, 1974). There may be a self-selection process involved in the parents' decision to send a child to a private school, with a tendency for those who are more concerned about school issues to make the private-school choice. This could mean that this group of parents is already involved in facilitating the child's school performance near the ceiling, and programs have no further effect. It is not easy to sort these questions out. For example, the ultimate decision to send a child to a private school was made after the program had taken place.

The fact that the program appears to have had its greatest effects for families in which the mother's education is high school or below, especially for two-parent families, could also be interpreted in a similar way to the public-private finding. Perhaps the higher-educated mothers (the high-SES families, using the education measure), independent of the program, had greater strengths in assisting their children's school performance. The greater impact of the program in two- than in one-parent families, however, does not fit this pattern. Two-parent families are the ones that could be hypothesized to be less in need of assistance. Nevertheless, the increased program effect in two-parent and in lower-SES families makes a certain amount of sense: the advantages of having the second parent may be manifested partly in greater opportunity to give emphasis to activities that facilitate the child's school performance, while the higher parental education may be associated with less need for external (program) assistance in this effort.

The final evidence we have adding to the coherence of the results for school performance is the apparent buffering effect of the program on the adverse consequences of lower income and change in maternal work status. While we were only able to examine the work-status change in the two-parent white group, it and the strong effect for income are indicators that there may in fact be something happening as a result of the program itself.

We conclude this chapter by mentioning several ways in which the analysis of school outcomes needs to be extended. More detailed examinations should be undertaken of confounding sociodemographic variables that may alter the understanding of program effects. In particular, it would seem worthwhile to give attention to other measures of SES and to look more at the joint influences of education, income, and employment status. The change over time of income and work needs further examination.

The different pattern of results in parochial as compared to public schools raises the question of whether it is the school type itself or family characteristics--for example, religion or ethnicity--that are the important determinants of how the program succeeds. Preliminary analyses of school type, religion, and ethnicity suggest that the latter 2 are secondary in importance. There are, however, some interesting interactions among these variables and the program, and these should be given attention in future work.

CHAPTER 4

PROGRAM INVOLVEMENT AND COMMUNICATIONS BETWEEN HOME AND SCHOOL

Moncrieff Cochran

> Hypothesis I: The educational potential of the school is enhanced to the extent that linkages are established and maintained between family and school both prior to and after the child's entry. (NIE Proposal, Cochran, 1980)

Interest in the quantity and quality of relations between home and school has grown over the past 5 years as educators and family advocates have come to realize that both families and schools affect the development of the child, and that partnership between the 2 may be a vital ingredient in fulfilling both the aspirations of parents for the futures of their children and the expectations placed upon schools by the communities they serve (Bronfenbrenner, 1979; Lightfoot, 1978; Seeley, 1981). Reference was made in the contract proposal to the fact that from a research standpoint little is actually known about patterns of communication between parents and teachers, especially as those patterns relate to first-grade children (see also Gotts and Purnell, 1984). So this part of our research and evaluation effort must be considered exploration in largely uncharted waters. The general hypothesis heading this chapter actually consists of 2 separable parts, 1 of which will be addressed here. We examine in this chapter the question of whether in fact "linkages are established and maintained between family and school," and whether in turn involvement with the Family Matters program affected that establishment and maintenance. Consideration of whether "the educational potential of the school is enhanced" is reserved for later in the report (Chapter 7).

4.1 VARIABLE DEFINITIONS

Data were gathered about home-school communications from the mother via an interview and from the child's teacher via a questionnaire (see protocols in the appendix). Nine categories of communication were included in the data collected: notes, telephone calls, informal talks, academic assistance, report cards, group meetings, observations, conferences (parent-teacher), and classroom volunteering. A list of the initial array of variables is provided in Technical Note 4.1. Most categories included variables representing both the teacher's and the parent's perspective, and often separate variables for each direction in the relationship. ("Did you [parent] ever receive a note from the teacher?" as well as "Did you ever send a note to the teacher?")

After examining descriptive statistics generated with these 35 variables, we reduced the total considerably for final analysis, to 12 variables in 3 main categories (see Figure 4.1). The primary reason for eliminating home-school communications categories was low frequency of response. As Figure 4.1 indicates, we also retained categories for which there were variables representing both teacher's and parent's perspectives of communication generated from both sources.

Figure 4.1

Home-School Communications Variables

	Parent Interview	Teacher Questionnaire
Conferences*	At parent request	At teacher request
	At teacher request	At parent request
		Regularly scheduled by school
Notes**	Parent sent note	Teacher received note
	Parent received note	Teacher sent note
Telephone Calls**	Parent called	Teacher called
	Parent received call	Teacher received call

*Conferences, coded initially by raw frequency (0-20), were recoded as a simple dicotomy (0, 1+) to reduce the impact of outlying values and produce a more normal distribution of scores.

**Notes and calls were also initially coded simply for frequency (0-50). Again, to eliminate outlying values the code was collapsed (0, 1, 2, 3, 4, 5+).

Frequencies of occurrence proved to be quite low even for the variables included in the final analysis. This meant that the occasional parent or teacher who used a communication method heavily had a disproportionate effect upon the mean score for her subgroup and therefore distorted that portion of the program-control comparision. As noted in Figure 4.1, we recoded the data in such a way as to reduce the impact of those outlying values.

4.2 RESULTS

While parent involvement in activities designed to prepare parents for effective communication with school personnel was a significant part of the Family Matters program, we recognized that other forces were also at work in determining whether communication between home and school occurred more or less frequently. We recognized that in most instances initiation of home-school communication is made by teacher or parent when there is a feeling that something is wrong -- that the child is in difficulty. So data sources in the interview and questionnaire were determined that could be used to identify those children who were indicated from 2 or more sources as "not doing well" (see Technical Note 4.2 for criteria used to distinguish children). Then using this simple dichotomy we examined mean levels of communication for the entire sample.[1] The results of this comparison are shown in Table 4.1.

The reader can see in Table 4.1 that in 12 of 13 instances reported communication is higher with families where the child is perceived as struggling than with those involving a more "successful" child. Ten of those 12 differences show statistical significance. The single variable showing no real difference between group means is the only one initiated by the school system rather than the parent or teacher. Clearly communication is linked with the perception that the child is having difficulty in school.

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[1] The sample (n = 219) consisted of all Wave II families except those in which the child was identified by the school as in need of special education (6 families).

Table 4.1

Mean Frequencies of Contact: Overall Sample by Child Performance Level

		Doing Well (D_1) n = 139	In Difficulty (D_2) n = 80
Conferences			
Parent requested	(P)	.10	.22
Teacher received request	(T)	.15	.26*
Parent received request	(P)	.10	.23*
Teacher requested	(T)	.20	.43***
School invited	(T)	.83	.81
Notes			
Parent sent note	(P)	1.31	1.51*
Teacher received note	(T)	1.21	1.55
Parent received note	(P)	.89	1.52*
Teacher sent note	(T)	1.40	2.60***
Telephone Calls			
Parent called	(P)	.87	1.33**
Teacher received call	(T)	.52	.83*
Parent received call	(P)	.47	1.12*
Teacher called	(T)	1.06	1.76***

(P) = parent interview; (T) = teacher interview.

* ≤ .05
** ≤ .01
*** ≤ .001

It is also reassuring to see some face validity in these data. The means indicate that notes are the most common mode of communication for these parents and teachers, followed by telephone calls and then conferences. And conferences attended because of teacher or parent request are rarer than those stemming from the school's invitation, which also makes sense.

Several other interesting patterns are discernible from the means. For instance, teachers report receiving roughly the same numbers of notes or requests for conferences as parents report sending, but teachers report initiating more such communications than parents indicate having received. Two possible explanations for this imbalance occur to us. Perhaps teachers have a response set based upon a general feeling that they ought to be communicating a little more than they in fact are. Or perhaps they have actually issued more invitations or sent more notes than have been received at home; notes get lost and messages forgotten, especially when 6-year-old children are the note-carriers and messengers. The data for telephone calls seem to support this second hypothesis. There the imbalance is bi-directional, with the caller always reporting more calls than the person called reports receiving. Anyone who has tried to reach a teacher at school or a parent at home can identify with this pattern. It typically requires several attempts before contact is actually established.

Convinced of the importance of distinguishing children perceived of as in some difficulty from those deemed "doing all right," we proceeded to make control-program comparisons separately for those 2 groups. Table 4.2 provides an overview of the results for families with children in "school difficulty"[2] following the format introduced in Figure 4.1. Included in the table are F values and probability levels associated with the program-control comparison for each family subgroup, in those instances where the probability was less than .20. A plus sign means a difference in favor of the program subgroup, and a minus sign one in favor of the controls.

The most striking aspect of the results shown in Table 4.2 is that differences in favor of the control subgroups outnumber those in favor of the program by 13 to 6. Could it be that participation with the Family Matters program had actually discouraged

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[2] Control-program comparisons of the children not reported as having difficulty showed no significant differences.

Table 4.2

Contacts Between Home and School
(Children in Difficulty Only)

		Black				White			
		Single		Married		Single		Married	
		F	P	F	P	F	P	F	P
Conferences									
At parent request	(P)					3.1	$.08^{(-)}$		
At parent request	(T)							1.7	$.19^{(-)}$
At teacher request	(P)					18.1	$.0000^{(-)}$	2.7	$.10^{(-)}$
At teacher request	(T)	1.9	$.17^{(+)}$	3.5	$.06^{(-)}$			5.7	$.02^{(-)}$
Telephone Calls									
Parent called	(P)	10.9	$.001^{(+)}$	3.1	$.08^{(-)}$	1.9	$.17^{(+)}$		
Teacher received call	(T)								
Parent received call	(P)			2.0	$.16^{(+)}$	2.8	$.10^{(+)}$		
Teacher called	(T)	2.2	$.14^{(-)}$						
Notes									
Parent sent note	(P)					2.4	$.13^{(-)}$	5.5	$.02^{(-)}$
Teacher received note	(T)	3.1	$.08^{(-)}$	1.7	$.19^{(+)}$				
Parent received note	(P)							2.3	$.13^{(-)}$
Teacher sent note	(T)			2.2	$.14^{(-)}$				

home-school communications? The pattern was especially clear for married white families in the case of conferences. We then entertained an alternative hypothesis: if conferences are primarily a function of how the child is perceived as doing in school, then perhaps this perception is more negative for control than program children in the "difficulty" (D_2) category, thus leading to more conferences for those families. That is, maybe participation in Family Matters reduced the magnitude of difficulty for those children prone to fail, thus reducing the need for conferences. To test this possibility we looked at the actual "difficulty" scores in the "difficult" portions of the program and control groups. Table 4.3 provides mean scores by subgroup.

Table 4.3

Level of School-Related Difficulty: Parent and Teacher Reports
Children in "Difficulty" Category Only (n = 80)

		Control	Program
Black	Single	9.33	11.60
	Married	7.33	5.60
White	Single	7.33	6.90
	Married	8.07	5.88

Cell means show the average number of places in the schools-related data set that children "in difficulty" were flagged as such.

If control group children identified as in difficulty are in greater difficulty than are their program counterparts, then the control means should be higher than the program means in Table 4.3. This proves to be the case for 3 of the 4 subgroups. The strongest difference between control and program is for white, married families (F = 4.4; p =.04), the subgroup containing the pattern of parent-teacher conference attendance in favor of the control families that we saw earlier in Table 4.2. This comparison of children in difficulty also shows a difference in the other direction for black single-parent families (F = 3.4; p = .07).

It is possible, then, that differences between the control and program groups in the amount of difficulty encountered by the less successful children in those groups are determining the frequencies of parent-teacher conferences that were apparent in Table 4.2. These differences in amount of difficulty could also be masking effects in favor of the program. Such possibilities can be tested by controlling for the "level of difficulty" differentials seen in Table 4.3. If "level of difficulty" is included in the analyses as a covariate control, then we would expect this adjustment to reduce both the conference effects in favor of the control group seen with white, married mothers, and those in favor of the program group observed for black, single mothers (Table 4.2). Predictions for telephone calls and notes are more difficult, because they are presumably less governed by whether the child is perceived of as having difficulty. Table 4.4 shows the findings generated by the control-program comparison of families whose children were considered in some sort of difficulty, controlling for the magnitude of that difficulty.

Table 4.4

Contacts Between Home and School
Children in Difficulty Only*

		Black				White			
		Single		Married		Single		Married	
		F	P	F	P	F	P	F	P
Conferences									
At parent request	(P)			2.9	.09$^{(+)}$	3.5	.07$^{(-)}$		
At parent request	(T)			3.5	.07$^{(+)}$				
At teacher request	(P)			3.3	.08$^{(+)}$	3.6	.06$^{(-)}$		
At teacher request	(T)								
Telephone Calls									
Parent called	(P)							1.8	.19$^{(-)}$
Teacher received call	(T)			8.1	.01$^{(+)}$				
Parent received call	(P)			4.8	.03$^{(+)}$	3.5	.07$^{(+)}$		
Teacher called	(T)			2.8	.10$^{(+)}$	2.6	.11$^{(+)}$	2.5	.12$^{(+)}$
Notes									
Parent sent note	(P)			5.2	.03$^{(+)}$	1.8	.19$^{(-)}$	5.5	.02$^{(-)}$
Teacher received note	(T)			2.1	.16$^{(+)}$				
Parent received note	(P)			11.7	.001$^{(+)}$			4.3	.04$^{(-)}$
Teacher sent note	(T)								

* Analysis limited to children in difficulty (n = 80), with the measure of difficulty also entered continuously as a further control for differences between control and program subgroups in degree of difficulty experienced by the children.

Addition of the control for degree of difficulty does indeed neutralize the program-control differences in conference involvement seen in Table 4.2 for both white married and black single mothers. This elimination of apparent effects by adjusting for level of difficulty further underscores the power of the perception that the child is performing below expectations as an impetus to conferences between parent and teacher.

A second difference between the findings produced with and without the covariate control (Table 4.4 vs. Table 4.2) is the emergence of findings supportive of the program in the second instance. Whereas control sample subgroups had appeared to be communicating more when the comparison had been made without the control for level of difficulty (by a ratio of 13:6), with the adjustment included the ratio shifted to 12:6 in favor of the program subgroups. Beyond the removal of control group advantages in conference activity already mentioned, there is also evidence in Table 4.4 of relative increase in the use of conferences by black, married, program parents that had been masked in the earlier analysis (Table 4.2). The emergence of a positive "conference effect" associated with program involvement is combined, for these black, married families, with similar differences in telephone and written communications (Table 4.4). Together these findings suggest that this group of parents places especially high value on the role of the school in determining the future success of their children. A statistical caution is in order, however. The regressions of home-school communications on the degree of difficulty the child is experiencing in school are not homogeneous for the program groups -- i.e., there is an interaction between program and school difficulties. Thus we cannot, in a simple way, control in this analysis for school difficulties.

Equally important are the findings that Tables 4.2 and 4.4 have in common: differences between program and control subgroups that were unaffected by the adjustment for difficulty level. In particular, these are differences in favor of the control group both for white, single families in relation to conferences and for the white, married subgroup with notes. An examination of the means associated with these differences (Technical Note 4.3) indicates that in every instance the control group mean is highest of the 4 family subgroups, while its counterpart in the program is the lowest of the 4. These data suggest that something is constraining the white program parents from parent-teacher communications that would otherwise occur at a relatively high frequency (high control group means). In the case of the white, single mothers, fewer conferences appears to be balanced by relatively more telephone calls. But this is not the case for the white, married families, leading us to wonder whether they are in some sense resisting the impulse to communicate with the teachers of their children.

What might account for this resistance, if "resistance" accurately describes the phenomenon? One possibility is that this subgroup of program parents faces other demands, which somehow interfere with home-school communications. A look at background characteristics (Technical Note 2.1) does not support this hypothesis; when compared to their control counterparts white, two-parent families in the program show higher incomes, equal or higher educational levels, slightly fewer working hours for both mothers and fathers, slightly fewer children, and significantly less residential mobility. Thus the program families do not appear to be living under more stressful circumstances. If anything the contrary is true.

Having at least tentatively ruled out effects caused by differences in external circumstances, it is time to consider the possibility that involvement with the program itself reduced the tendency of these parents to initiate or respond to school-related communications. Might the program designers and workers have been sending messages that suggested alternatives to increased communications as appropriate responses to signs that the child was having some difficulty in school? There was, in fact, a major theme running through the Family Matters approach that might have been manifested in reduced "reaching out" behavior, at least in situations of only moderate perceived difficulty. We constantly trumpeted the importance of parents as teachers, urging parents to appreciate their own importance in the development of their children and to spend time in face-to-face activities with them. At the same time we encouraged parents to make contact with their children's schools, prior to as well as after enrollment. But it is reasonable to assume (Sutherland, 1983; Seeley, 1981) that parents in differing life circumstances bring different ideologies to bear on decisions related to education and to schools. These differing ideologies may produce different levels of receptivity to the various strategies for strengthening family life offered by Family Matters. Perhaps the parents in these white, two-parent families, where the mother was relatively unlikely to be working outside the home, were especially receptive to a "we can handle this within the family" message, and so responded to program involvement by making that, rather than outreach to the school, their first strategy of response to signs that things weren't what they might be for their children at school.

4.3 HOME-SCHOOL COMMUNICATIONS IN RETROSPECT: WHAT HAVE WE LEARNED?

One major principle guiding the design of our NIE contract renewal proposal was that "the primary aim of the research is scientific discovery rather than the testing of preconceived hypotheses (Cochran, 1980)." Nowhere has this been more true than in the area of home-school communications, where there is a dearth of empirical studies. This situation notwithstanding, we worked hard to develop a parent interview and a teacher questionnaire that would permit the generation of valid and reliable data about the current state of home-school communications at the early elementary level. Family Matters workers were also provided the means by which to discuss basic school communications techniques and issues with the families they served. The goal, in this discussion of findings, is not to provide answers to questions of educational or family policy. It is instead to provide some signposts for those who follow: researchers who would sharpen our understanding of the dynamics underlying home-school communications, and those in local communities committed to improving those communications.

4.3.1 The Power of Negative Thinking

The most powerful finding to emerge from this exploration of parent-teacher communications was the extent to which communications of any kind were contingent upon the perception of the child as having school-related difficulty. While the finding itself is not surprising, we confess to being somewhat discouraged by its pervasiveness, and the manifest inability of our own educational program to pry loose its grip on behavior. The reward for the 64 percent of our families whose children were "doing fine" in school is that they received significantly fewer notes, telephone calls, or conference invitations from the teacher. This pattern is confirmed by the reports of both parents and teachers, and of course both are parties to it. Teachers are not trained to reach out to parents, except perhaps in response to danger signals in the child. Parents are encouraged to "leave schooling to the schools" unless their child shows evidence of difficulty. Our data indicate that involvement with the Family Matters program had no influence upon the communication patterns of parents whose children were viewed as progressing satisfactorily. These parents apparently preferred to leave well enough alone despite our attempts to stimulate more active involvement. And because Family Matters was not mandated to work directly with teachers, the willingness of teachers to extend their communications beyond the parents of children in difficulty was not tested. We will return to the question of the school's role in home-school communications later in the discussion.

The Family Matters program had as a conscious purpose the countering of what we refer to as the deficit model of support for American family life, and went to some lengths to design experiences with families that capitalized on their strengths as they perceived them (Cochran and Woolever, 1983). From that vantage point, the evidence that home-school communications are generated in large measure by inadequacy on the part of the child fits the larger cultural pattern: a policy orientation, unquestioned by most of the parents themselves, that implies home-school partnerships (or home-community, or home-workplace) are appropriate as long as the family has a "problem." Aimed at remediation rather than prevention, even with first-graders, this orientation encourages the maintenance of distance rather than closeness between parents and teachers, because contact has such clearly negative connotations (see also Lightfoot, 1978).

4.3.2 Altering Ideology: A Systems Approach?

If, as we propose, this tendency to limit communications (or other kinds of "assistance") to primarily negative family situations is true also for other institutions of society, then 2 questions arise: Should it be tampered with? And if so, how is change most likely to be accomplished? We answer the first question in the affirmative and support that position with 2 assertions. The first claim is that children learn more easily if teaching incorporates their prior experiences. Parents and other family members have information that can make the learning process more effective. Second, there is some reason to believe that successful parents are those who are good at performing their "executive" functions well (Keniston, 1977) -- that is, finding necessary resources in extended family and community, and making those resources work on their behalf. The inclusion of parents as a positive aspect of the school process might both increase their capacity and their willingness to "take charge" of other aspects of their lives.[3] There is also evidence (Epstein, 1983) that parents who are welcomed as regular participants in the ongoing life of their child's school are more likely than those left alone to participate with the child in school-related educational activities at home. However, much of the research needed to prove or disprove our several assertions has not been conducted, as far as we are able to ascertain. In the meantime, therefore, we advocate an alternative to the prevailing ideology, an approach that would build upon the strengths of parents rather than dwelling primarily upon their deficits.

If current ideology is to be modified, how might that be accomplished? Experience with the Family Matters project suggests that working with parents alone is not enough. In our interviews with parents about communication with the school, a substantial number of them indicated that their own memories of school were negative. Clearly such feelings interfere with any inclination to enter into partnership with the school on behalf of the child. Such interference might be overcome, however, by special initiatives on the part of the school signaling a genuine interest in parent-teacher partnerships. Unfortunately our contract with the National Institute of Education precluded the encouragement of such initiatives by Family Matters.[4] Since fulfilling our programmatic obligations in Syracuse, N.Y. under the NIE contract, however, the Family Matters Project has completed and pilot-tested a comprehensive set of educational materials related to home-school communications (Dean, 1983), which includes 2 days of in-service training for school teachers and principals.[5] This effort reflects our strong belief that the prevailing deficit orientation associated with home-school communications can only be altered with an approach that recognizes that parents and teachers are both part of a larger ecological system, all components of which must participate fully if change is to occur.

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[3] Reginald Clark, in a report to the Spencer Foundation (Clark, 1982), points out that teachers are often unable "to clarify or precisely identify their expectations for the parents" (p. 75). They send ambiguous signals, indicating on the one hand that instruction is best left to professionals, and on the other that parents should be engaged in educational activities with their children.

4.3.3 Differential Effects: Some Possible Causes

Our close examination of the 80 families whose children were identified as having some difficulty did uncover clear indications that program involvement was associated with differences in communication patterns. Specifically, there was a consistent pattern of program-related increases for black, married families, and some indication of decrease for their white, married counterparts. In commenting earlier upon the apparent decrease for white, married families, we suggested the possibility that program involvement might have reinforced an ideology of self-sufficiency, which led to a desire to "solve the problem ourselves" rather than the seeking of assistance from the teacher. Why, then, might association with the program nudge black, married parents in the other direction?

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[4] In the original proposal written to NIE, Family Matters did not anticipate the issue of working directly with schools on behalf of families. At the time of renewal, NIE colleagues expressed the view that such an addition would confound the question of what caused any program related change: work with parents or with schools.

[5] With support from the W.K. Kellogg Foundation and Extension, U.S.D.A.

A number of the black married families in our sample were heavily engaged in efforts toward upward mobility. Both parents were in the work force, and schooling was viewed as a major, or perhaps the primary, route to a permanent escape from poverty. Of our 4 primary subgroups, this was the 1 with the most to gain or lose from the school experience. Might this extra achievement motive have produced a special receptivity toward the school-related messages being sent by Family Matters, 1 of which emphasized the potential utility in well-planned interactions with the child's school?

4.4 CONCLUDING THOUGHTS

This presentation of findings related to home-school communications began with a guiding hypothesis, which can now be reconsidered on the basis of what has been learned from our data. The hypothesis maintained that the educational potential of the school is enhanced to the extent that linkages are established and maintained between family and school both prior to and after school entry. We partitioned the hypothesis further, to distinguish the conditions under which "linkages are established and maintained" from the issue of whether or not these linkages "enhance the educational potential of the school." Based upon the preceeding data analyses, we can now say that perceptions of the child as successful or unsuccessful in school had far more influence on establishment of linkages than anything Family Matters was able to contribute through its relations with parents. In those instances where children were thought of as having difficulty, certain Family Matters parents behaved somewhat differently. But that response varied: it was an increase in communications for families of one type and a decrease for those of another. So we are left to conclude that any policy that sets out to achieve a general increase in communications between home and school must come to grips first with the prevailing belief that such communications are a sign of educational deficit. Our findings also raise the possibility that, within this general deficit-oriented climate, families will respond differently to a stimulus like Family Matters depending upon their positions in the social structure. White families intent upon maintaining their social position may react to stigma in a protective way, by reducing visibility. Black parents, striving to change position, may be willing to risk their present status in order to increase the influence they have over the educational experiences of their children. These are testable hypotheses arising from hypothesis-generating research.

The evidence that communications are perceived as related to children in difficulty sheds new light on the other aspect of our home-school communications hypothesis: that such linkages enhance the educational potential of the school. Such a proposition seems reasonable enough under conditions in which home-school links have at worst neutral valence. But conditions of negative valence suggest a far more complex process. Before such communication can take place, the child must first be seen as "deficient," and the parents must overcome feelings of embarrassment and inadequacy. Thus a situation is established in which any true partnership between parent and teacher on behalf of the child will come slowly and painfully at best. Under those conditions, one would hardly expect dramatic improvement in child outcomes.

TECHNICAL NOTE 4.1

Contents of Original Questions Asked about Home-School Communications: Teacher Questionnaire and Parent Interview

Teacher Questionnaire

1. How many times have you called the parent on the phone?
2. How many times has the parent called you?
3. How many formal conferences have you had with the parent?
4. How many conferences at parent's request?
5. How many conferences at teacher's request?
6. How many times have you been observed in the classroom by the parent?
7. How many times have you discussed these observations?
8. How many times have you sent a note home?
9. How many times have you received a note from home?
10. How many school-related meetings has the parent attended?
11. How many times have you talked informally with the parent in school?
12. How many times have you talked informally with the parent outside school?
13. Has the parent been in contact with anyone else at school?
14. How often has the parent made requests for information?
15. How many times has the parent attended school-related activities?

Parent Interview

1. How many times have you contacted the teacher by phone?
2. How many times has the teacher called you on the phone?
3. How often have you sent notes to the teacher?
4. How many times has the teacher sent you a personal note?
5. How often have you talked informally with the teacher at school?
6. How many times have you talked informally with the teacher outside of school?
7. How often have you met with the teacher during a conference period?
8. How often have you been invited to a conference and not gone?
9. How often have you had a conference requested by the teacher?
10. How many times have you had conferences at your own request?
11. How often have you observed in your child's class?
12. How often have you been to meetings about your child's program?
13. Did you have any personal discussion at that meeting?
14. Have you ever known about a meeting and chosen not to go? (# times)
15. How many times have you received a report card?
16. Did you or anyone respond to that report card?
17. Type of response (note on card, separate note, telephone call, conference request)
18. How many times have you worked as volunteer in child's class?
19. How many PTA meetings have you attended?

TECHNICAL NOTE 4.2

Criteria Used to Determine Children in Difficulty
(33 categories from V410, V412, and V413)

Cognitive Development Problems

Can do productive work at current reading level
Level of work in reading - 1st report card
Level of work in reading - 2nd report card
Level of work in reading - 3rd report card
Can read very short stories without help
Level of work in mathematics - 1st report card
Level of work in mathematics - 2nd report card
Level of work in mathematics - 3rd report card
Vocabulary signifies understanding of order and quantity
Can tell a simple story about a picture
Shows auditory skills
Interested in lots of things
Average of all marks on report card
1982 remedial help
Retained in 1982
Effects of home activities on child in school

Behavior and Emotional Problems

105-TS: Sufficient attention span
106-TS: Interaction with classmates
109-TS: Cooperative - uncooperative
110-TS: Helpful to others - not helpful
111-TS: Good manners - bad manners
112-TS: Meets demand of general social behavior
118-TS: Behaves well in school - behaves badly in school
119-TS: Happy - unhappy
122-TS: Hardworking - lazy
123-TS: Responds to requests - disregards requests
124-TS: Shows confidence
125-TS: Confident - lacks confidence
135-PI: How TC feels about going to school
289-TS: Relationship with teacher
290-TS: Social maturity

Attendance Problems

131-PI: Days missed for health reasons
133-TS: Number of days absent

TECHNICAL NOTE 4.3

Mean Frequencies for Children in Difficulty Only
(n = 80)

Conference Called at Parent Request: Parent Report

		Control	Program
Black	Single	.21	.07
	Married	.00	.74
White	Single	.49	.11
	Married	.14	.22

Conference Called at Parent Request: Teacher Report

		Control	Program
Black	Single	.30	.13
	Married	.15	1.17
White	Single	.19	.19
	Married	.36	.32

Conference Called at Teacher Request: Parent Report

		Control	Program
Black	Single	.28	.08
	Married	.00	.77
White	Single	.54	.15
	Married	.20	.16

Conference Called at Teacher Request: Teacher Report

		Control	Program
Black	Single	.19	.19
	Married	.50	1.17
White	Single	.70	.42
	Married	.56	.43

Parent Made Telephone Call: Parent Report

		Control	Program
Black	Single	.75	1.67
	Married	1.57	3.06
White	Single	.93	1.67
	Married	1.77	1.00

Teacher Made Telephone Call: Teacher Report

		Control	Program
Black	Single	1.53	.83
	Married	1.63	5.48
White	Single	1.66	2.80
	Married	1.33	2.42

Parent Received Telephone Call: Parent Report

		Control	Program
Black	Single	.74	1.37
	Married	.16	4.11
White	Single	.39	1.77
	Married	1.26	.95

Teacher Received Telephone Call: Teacher Report

		Control	Program
Black	Single	.31	.19
	Married	.50	4.31
White	Single	.98	1.06
	Married	1.24	1.18

Parent Sent Note: Parent Report

		Control	Program
Black	Single	.95	1.19
	Married	1.10	5.71
White	Single	2.48	.84
	Married	2.42	.67

Teacher Sent Note: Teacher Report

		Control	Program
Black	Single	2.92	2.00
	Married	2.32	4.51
White	Single	2.72	2.91
	Married	2.62	2.05

Parent Received Note: Parent Report

		Control	Program
Black	Single	.78	1.16
	Married	.32	6.44
White	Single	1.88	1.57
	Married	2.01	.71

Teacher Received Note: Teacher Report

		Control	Program
Black	Single	1.51	.78
	Married	1.28	4.74
White	Single	2.18	1.58
	Married	2.16	1.59

CHAPTER 5

PARENTAL PERCEPTIONS, PARENT-CHILD ACTIVITIES, AND THEIR RELATION TO THE CHILD'S PERFORMANCE IN SCHOOL

Charles R. Henderson, Jr.

While improving the child's performance in and adaptation to school were the ultimate goals of our program intervention, the program focus was as much on the parents as on the child: group meetings involved the parents directly and the children as a primary topic of discussion; and home visits focused on providing support for the mother and father in their role as parents and emphasized positive parent-child activities.

In this chapter, we consider the question of whether the program caused any changes in the mother's perception of her child, herself, or her husband/partner (in two-parent families), or any changes in activities carried out jointly between the mother and her child. Then, a detailed examination is made of the relation between perceptions and activities, and between each of these domains and the child's school performance.

As in the other chapters of this report, there are numerous anecdotal findings, but here as elsewhere in the report we confine our discussion to those that have reasonable coherence, demonstrating a consistent pattern across a number of measures for a given comparison of groups or showing effects not just at smallest subclass levels for individual measures. The results presented in this chapter are for the entire sample without distinguishing between public and private schools, or city and suburban school districts. These factors appeared not to have great relevance in the relations between school performance and perceptions or activities. This subject should be further pursued in future work, however. In the analyses that link perceptions and activities to measures of school performance, the children in special education were excluded, as in Chapters 3 and 4.

The reader will recall that one of the difficulties in interpretation of program effects for school outcomes was the lack of measures of innate ability or Time 1 school performance. For activities and perceptions, we do have measures from baseline data collection. The instruments were changed too substantially, however, to use these variables with confidence as difference scores or in a repeated-measures analysis. We can use the Time I variables as covariates, and such models are the basis for some of the results given below.

5.1 VARIABLES

Both the Stresses and Supports and the Child Caregiver Activities baseline interviews comprised exclusively open-ended questions, which were coded for content and used to construct variables. In the interviews used for the follow-up assessment, some of the open-ended questions were retained; in addition, a variety of checklist questions was added to each interview.

In the domain of activities, we concentrate exclusively in this report on the variables derived from checklist questions concerning the mother's report of joint activities with the child. These questions allow for a 4-point response (never; once in awhile; a lot; almost every day) to questions such as, "We do household chores together," "We make up stories together." A complete list of the questions can be seen in the copy of the interview included in the appendix. The 55 original questions were reduced to 13 summary variables, and these in turn were condensed to 5 even more aggregated summary variables. It is the smaller group of 5 that is presented in this report. These variables showed coherent relations to other variables of interest, so the necessity to refine the activities variables further was minimized. Future work will examine the components of these summary variables as well as variables derived from the content coding of the open-ended questions. We will also look at fathers' reports of their activities with the child.

The 5 joint activities variables included in the report are as follows:

talk
creativity
tasks
companionship
total activities.

In Stresses and Supports, we analyzed both checklist and content variables. Both sets concern the mother's perceptions of self, child, and spouse. The checklist variables are derived from responses to questions on a 5-point scale, in the case of the child, and on a 7-point scale in the case of perception of self. The points on the scale are unlabeled for child evaluation; the end points are labeled "not very well" and "very well" for self evaluation. "Unhappy/happy," "pays attention/does not pay attention," "takes responsibility/does not take responsibility," and "gets along well with other children/doesn't get along well with other children," are examples of questions about the child. Questions asked about the respondent include, "teaching my child the difference between right and wrong," "spending enough time with my child," and "teaching my child the skills and knowledge not taught in school." The full set of questions is in the interview included in the appendix. As can be seen from the questions regarding the respondent and the spouse, the focus is on the parenting role, and variables derived from these checklists are labeled generically as "self as parent" variables. To distinguish the checklist variable from content variables, we have given the name "perception of parenting" to the former.

In addition to the modifications made to the open-ended sections of the interview from baseline to follow-up, the content coding scheme was completely revised, eliminating a number of confusions that existed in the original code, adding features to capture change over time and aspects of older, school-aged children, and allowing for a much more accurate and detailed coding of units in which the source of stress or support is a person. We were also able to have the coding done by a small group of highly skilled coders, ensuring quality and comparability of coding for all interviews. The content coding category reliabilities for follow-up range from 64 to 85%, depending on the number of distinct aspects of the unit for which agreement is required. Given the complexity of the coding scheme and the open-ended nature of the responses, these reliabilities are excellent (and considerably higher than those obtained at baseline). The range of scores for summary (domain) variables is also much larger than at baseline: whereas at Time 1 the range was often (0, 4), with the mode 0 or 1, at Time 2 ranges are typically (0, 20), with a uniform or a bell-shaped distribution over the entire range. There is considerable correspondence in results for the variables constructed from the content coding and those derived from the checklists. This adds to the validity of both types of measures.

In the coding of content, positive and negative perceptions are distinguished. Thus, we constructed variables that maintain this distinction. The following is a list of stresses and supports variables:

V360	perception of the child	checklist
V358	perception of the child's responsiveness to learning	"
V357	perception of parenting	"
V594	negative perceptions of the child: total	content
V595	negative perceptions of the child: cognitive	"
V596	negative perceptions of the child: disposition	"
V597	negative perceptions of self: total	"
V598	negative perceptions of self: as parent	"
V599	negative perceptions of spouse: total	"
V600	negative perceptions of spouse: as parent	"
V609	positive perceptions of the child: total	"
V610	positive perceptions of the child: cognitive	"
V611	positive perceptions of the child: disposition	"
V612	positive perceptions of self: total	"
V613	positive perceptions of self: as parent	"
V614	positive perceptions of spouse: total	"
V615	positive perceptions of spouse: as parent	"

5.2 PROGRAM EFFECTS ON FAMILY PERCEPTIONS

The models used for analysis of perceptions were based on our experience with baseline analysis of those outcomes and on the work with school outcomes reported in Chapter 3. The core model includes programs (T), race (R), marital status (P), and maternal education (M), as discussed in Chapters 2 and 3. Models that look in greater detail at the two-parent white sample and that were productive in baseline analyses (e.g., examination of 3 levels of maternal work status) are not considered in this report.

We carried out several types of analyses to examine whether there exist any differences by program for the mother's perceptions of herself, her child, and (if married) her husband. The Time 2 outcomes were analyzed alone, and then Time 2 outcomes were analyzed with the most nearly comparable variables from Time 1 included as a covariate. While there are no exact counterparts at the 2 time points (same scale, same variances, etc.), we also carried out a repeated-measures analysis for each variable. This is reasonably appropriate for the variables from the content coding, less so for the checklist variables. The results reported are those that held up consistently under this sequence of runs. There are relatively few program effects.

There is a strong tendency for whites to be more voluble than blacks over most domains, including positive and negative perceptions of self, child, and spouse, and this race difference increased from Time 1 to Time 2. This result could be due to the interview, the interviewers, the coders, the respondents, or some combination or interaction of these. We do not pursue this issue here. There are also consistent trends of more comments having been made by mothers with more education in comparison to those with less, and by married in contrast to single women.

In perceptions measured from the content coding, there is a somewhat consistent pattern of stronger feelings (both positive and negative) expressed by program than control mothers -- for both Time 2 scores and amount of change -- over a range of types of perceptions and subgroups: whites, especially single-parent or higher educated; and married blacks with more than high school education. An exception to the pattern of more positive perceptions by program mothers occurs in the mother's positive perceptions of the child's cognitive and school-related characteristics, where (for some of the same groups listed above) the change in perceptions is less for program than control. The interpretation of this result is not clear, but we must keep in mind that the mother's perception and the child's actual performance are not the same thing: the program could have aroused heightened concern about school-related topics, even while fostering better performance in school; the concern can serve a positive purpose in the help the parent gives to the child.

A second exception to the above pattern is that perceptions are less negative for self as parent (V598) for program whites than control whites.

The only checklist variable to show differences by program is perception of parenting (V357), which can only be examined as a Time 2 score. Perceptions are more positive for program white mothers than control whites, owing especially to unmarried mothers, and for all program single mothers in comparison to control single mothers, excepting blacks in the lower educational group. Married program blacks have less positive self-perception than their control-group counterparts. The results for perception of parenting are shown in Table 5.1.

Table 5.1

Mothers Perception Of Self As A Parent

		Control	Program	Diff
Black	Single	144.08	149.14	5.06 (.49)
	Married	160.30	148.40	-11.90 (.09)
White	Single	130.65	146.90	16.25 (.01)
	Married	141.89	142.75	0.86 (.77)

Table entries are means with probabilities in parentheses

5.3 PROGRAM EFFECTS ON REPORTED JOINT ACTIVITIES

The same analyses as for perceptions were carried out for the mothers' reports of joint activities. There is no real equivalence between the checklist variables and Time I content variables. Nevertheless, a repeated-measures design was used in a secondary analysis to assist in interpretation of other analyses; an attempt was made to convert the scales to a somewhat equivalent basis.

The strongest pattern of results was for more activities to be reported for all variables -- talk, creativity, tasks, and companionship -- by mothers with more schooling in comparison to those with less. This result is due more to single than married women. Blacks report fewer talk and companionship activities than do whites, but to the extent that change over time can be determined with any accuracy, the gap is decreasing for all variables.

There are essentially no program effects as measured by the Time 2 report. Attempting to look at change produced no coherent or interpretable patterns.

5.4 RELATIONS AMONG DOMAINS

In the remainder of this chapter, we examine the interrelations among mothers' perceptions of self and child, reports of joint activities with the child, and school outcomes. We consider the same set of school variables as in Chapter 3, the 4 activities variables, talk, creativity, tasks, and companionship, and a set of 5 perception variables -- perception of parenting (V357), positive and negative perceptions of self as parent (V613 and V598), and positive and negative perceptions of the child (V609 and V594).

To examine the relationship between a pair of variables, we hypothesize a direction of causality. As can be seen in our conceptual schema (Figure 2.1), parent-child activities are hypothesized to be influenced by parental perceptions, and school outcomes are hypothesized potentially to be affected by perceptions and by activities. The influenced variable (e.g., school performance) is the dependent variable in the model for analysis, and the causal variable (e.g., parent-child activities) is included as a covariate, with regressions specified separately by smallest subclasses defined by the classification factors under study. In analyses using the total sample, the classification factors were programs (2 levels), race, and family structure.

We also looked in detail at the married white sample, with program (T), mother's educational level (M), and sex of the target child (S) as the classification factors, since this is the group that is sufficiently large to make further divisions such as by education and sex. This model proved to be productive, particularly for the activities-school analysis. Education was not included categorically in the TRP model; it was examined as a covariate in representative runs to ensure correct interpretation of results.

The focus in these models is on whether regressions of the dependent variable on the covariate are the same or different (homogeneous or nonhomogeneous) for model subgroups, and particularly on whether there are differences by program. The results are presented in terms of tests of equality of regression coefficients, and some of these regressions are shown in graphical form. Greater detail on this method of analysis is given in Chapter 2 (see Technical Note 2.3 in particular).

5.4.1 The Influence of Perceptions on Joint Activities

That a mother's sense of herself as a parent or her view of her child might affect the type or amount of activities she and the child are jointly involved in seems obvious. The questions we consider are whether there is such a relation and whether it holds for families irrespective of program involvement or is the result of program involvement. A positive, significant regression for a given group indicates that more positive perceptions lead to more joint activities.

We consider first mother's self-perceptions. For perception of parenting, there is a strong and consistent finding of positive regressions for program whites (both single and married) for all types of mother-child activities. Table 5.2 shows for the 4 activities variables the regressions and probabilities for the 4 program-by-race groups and for the total program and control groups; it also shows the tests of equality of regressions by program, and the TR interaction.

Table 5.2

Mother's Perception of Parenting = f(Activities)

		Control	Program	Diff
Talk	Black	.059 (.64)	-.048 (.51)	-.107 (.46)
	White	.019 (.69)	.148 (.00)	.129 (.05)
	Total	.039 (.56)	.050 (.24)	.011 (.88)
Creativity	Black	.067 (.29)	.037 (.32)	-.030 (.68)
	White	.023 (.34)	.084 (.00)	.061 (.07)
	Total	.045 (.18)	.060 (.01)	.015 (.70)
Tasks	Black	.137 (.19)	.035 (.56)	-.102 (.40)
	White	.054 (.17)	.157 (.00)	.103 (.06)
	Total	.096 (.09)	.096 (.01)	.000 (1.00)
Companionship	Black	.180 (.13)	-.069 (.32)	-.248 (.07)
	White	.049 (.27)	.194 (.00)	.145 (.02)
	Total	.114 (.07)	.063 (.12)	-.051 (.49)

Table entries are estimated regression coefficients with probabilities in parentheses.

Figure 5.1 shows for talk the 4 race-by-program estimated regression lines; Figure 5.2 shows for whites the data points and the 2 estimated regression lines for control and program. In interpreting the graphs, it must be kept in mind that the slope is not the whole story: the variance of the regression estimate (or of the difference between 2 regressions) is central to the comparison of estimated coefficients. Thus the tables give the most accurate sense of how program and control regressions compare.

From the table and figures for perception of parenting we can see that for white families there is an interaction between the program and mother's self-perception: for controls, there is no relation between perceptions and activities, but, for those in the program, more positive perception is strongly associated with more joint activities. The apparent interpretation would be that for those mothers with higher self-perceptions, the program channeled this attitude, in part, toward involvement in activities with the child. Of course, a related issue is the program's effect on perceptions themselves, and it is the whites for whom there is an apparent program effect of higher self-perceptions. It is possible that the primary effect of the program is in increasing self-perceptions, and that the effect on activities follows as a consequence. Or, the program may in fact have affected the relation between the 2 domains.

An obvious question at this point is the relation of the preceding results to mean differences in activities, which we noted above showed no consistent differences by program. For a relationship of the form shown in Figure 5.3, which has different regressions of y on x for groups 1 and 2, there is some covariate value, x_0, beyond which the group differences for y (i.e., $y_2 - y_1$) differ significantly. For the variables that we have been discussing, the point x_0 is near the upper end of the range of values for the covariate, giving only a small range with significantly positive program differences and therefore no general finding of program effect on activities. The point x_0 will be farther to the left for some other plots to be seen later.

FIGURE 5.1

TALK = F (PERCEPTION OF PARENTING)
REGRESSIONS BY TREATMENT AND RACE

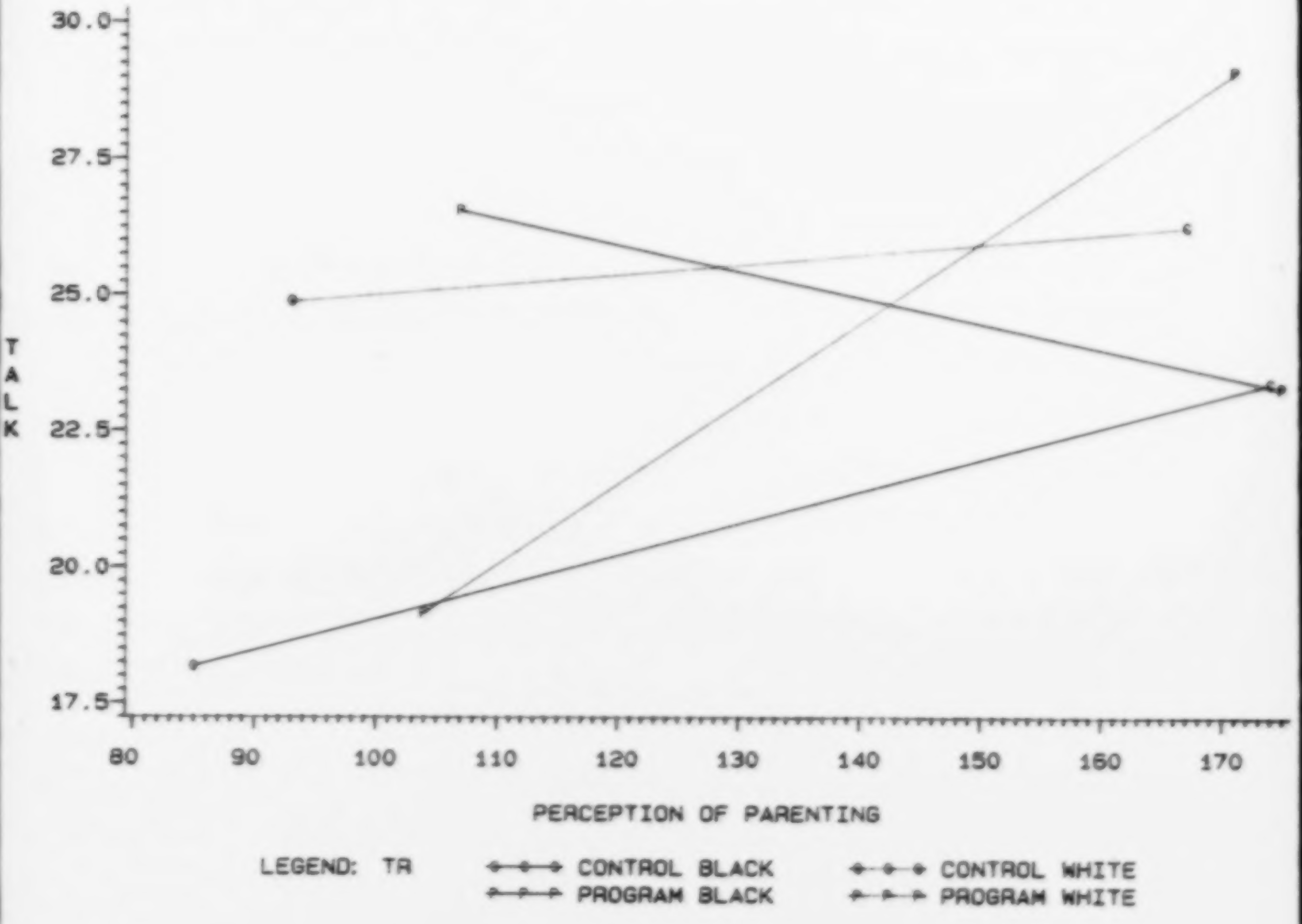


FIGURE 5.2
TALK = F (PERCEPTION OF PARENTING)
REGRESSIONS BY TREATMENT
WHITE MOTHERS

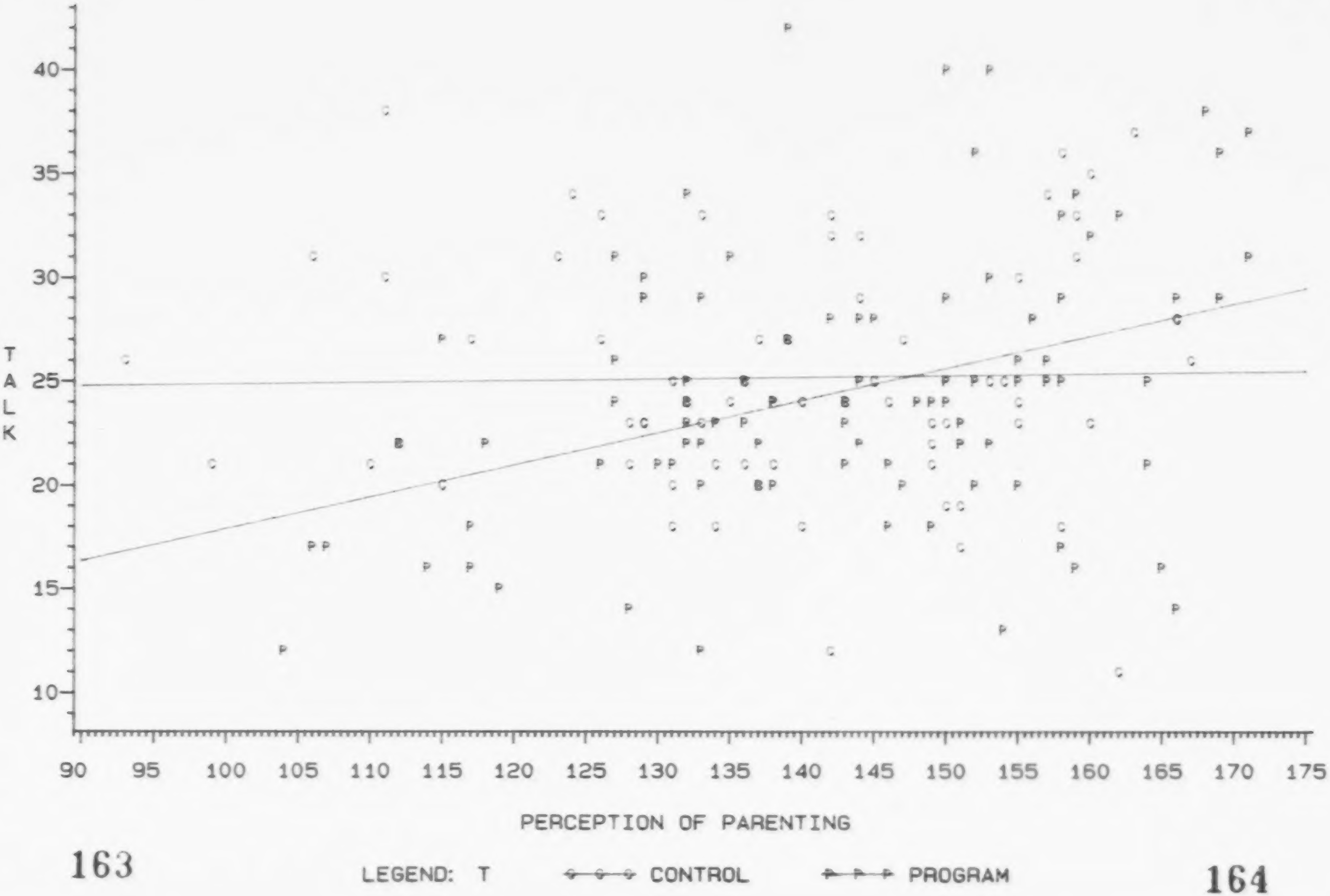
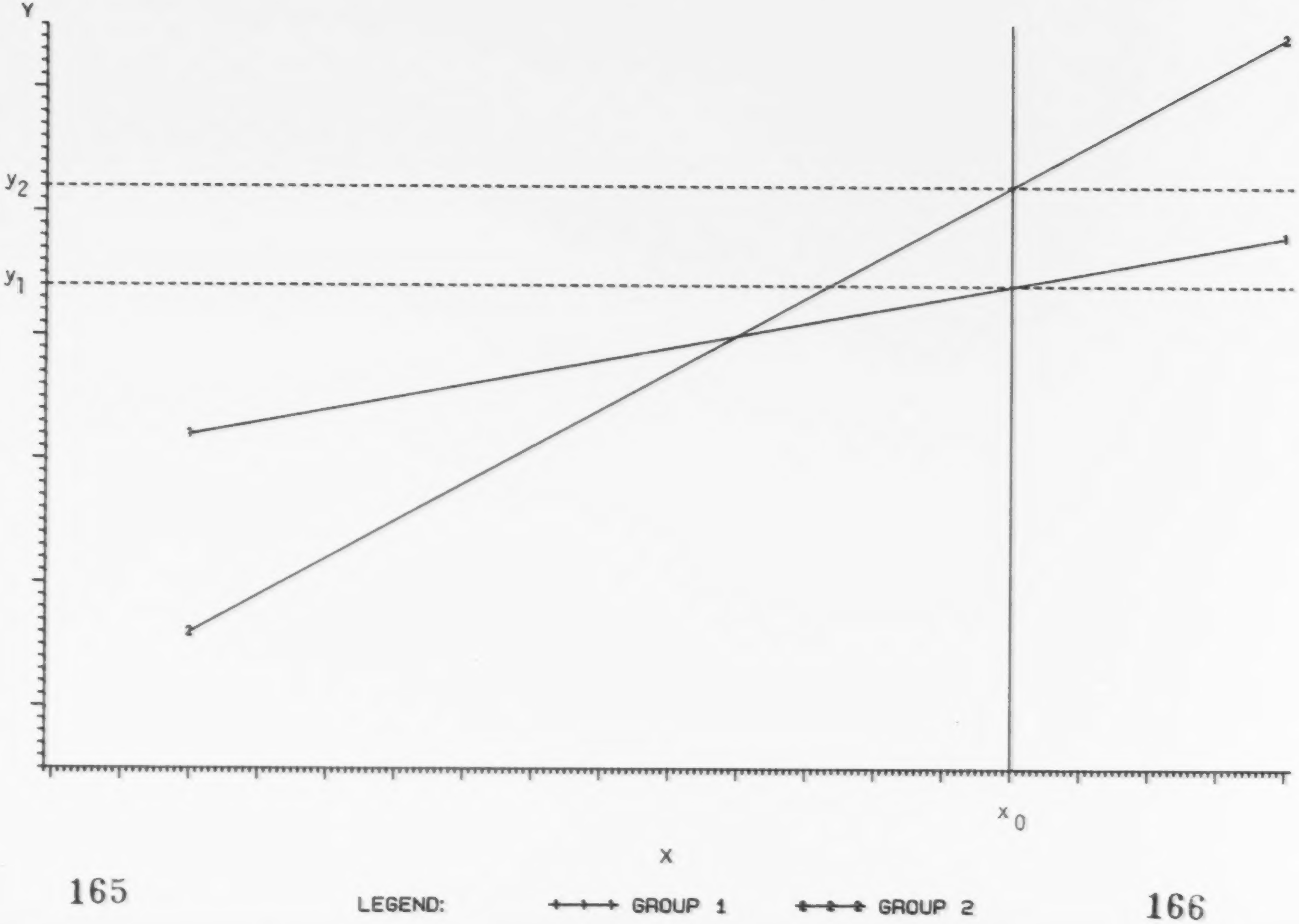


FIGURE 5.3

MEAN DIFFERENCES AS A FUNCTION OF THE COVARIATE VALUE



The interaction among program, race, and perceptions (i.e., regressions on perceptions nonhomogeneous for the TR interaction) captures the primary pattern in the perceptions- activities data. There are other significant regression differences, but they can be explained by the pattern already discussed. For example, there is a strong positive regression for single mothers, but it is dominated by the white singles. Also, whites have significant positive regressions, but this is due primarily to program families, and, except for talk, the regression for the total sample is significant, reflecting the strong effect for the white program group but also indicating a general positive trend for other groups.

The content measure of positive perceptions of self as parent (V613) shows similar, if slightly weaker, positive regressions for activities variables for white women in the program (see Table 5.3). It also shows positive regressions for program blacks (with the

Table 5.3

Mother's Positive Perception of Self as a Parent
= f(Activities)

		Control	Program	Diff
Talk	Black	-.342 (.34)	.414 (.24)	.756 (.13)
	White	-.157 (.57)	.307 (.11)	.464 (.17)
	Total	-.249 (.27)	.360 (.07)	.609 (.04)
Creativity	Black	.020 (.91)	.553 (.00)	.533 (.03)
	White	-.104 (.45)	.335 (.00)	.439 (.01)
	Total	-.042 (.71)	.444 (.00)	.486 (.00)
Tasks	Black	-.265 (.39)	.306 (.31)	.571 (.19)
	White	-.290 (.22)	.213 (.19)	.503 (.08)
	Total	-.277 (.15)	.260 (.13)	.537 (.04)
Companionship	Black	-.151 (.66)	.686 (.04)	.837 (.08)
	White	-.181 (.49)	.459 (.01)	.640 (.05)
	Total	-.166 (.45)	.572 (.00)	.738 (.01)

Table entries are estimated regression coefficients with probabilities in parentheses.

single-parent blacks positive but nonsignificant). Except for married whites, the control women show negative (but nonsignificant) regressions. The result is a program main effect for the difference in regressions. Figures 5.4 and 5.5 show for creativity the race-by-program estimated regressions and the overall control and program regressions.

There is also a positive relation for program mothers, especially married blacks, between creativity and companionship and negative perceptions of self as parent (V598). Note that positive and negative perceptions from the content coding are not necessarily 2 ends of a continuum, but potentially 2 distinct frames of reference. Thus it is quite possible that the program can affect the relation of activities to both positive and negative perceptions in the same way. An increase in both positive and negative perceptions of self could be interpreted as a general increase in awareness of the importance of the parenting role.

The mother's positive perceptions of the child (V609) show a similar pattern to her perceptions of self, as seen in Table 5.4. Figure 5.6 shows the plot for companionship activities.

Table 5.4

Mother's Positive Perception of Child = f(Activities)

		Control	Program	Diff
Talk	Black	-.060 (.88)	.238 (.44)	.298 (.56)
	White	.072 (.66)	.397 (.00)	.325 (.12)
	Total	.006 (.98)	.318 (.06)	.312 (.25)
Creativity	Black	.024 (.91)	.298 (.06)	.274 (.29)
	White	-.015 (.86)	.222 (.00)	.237 (.03)
	Total	.005 (.97)	.260 (.00)	.255 (.07)
Tasks	Black	.180 (.61)	.310 (.25)	.130 (.77)
	White	.035 (.81)	.246 (.02)	.211 (.24)
	Total	.108 (.57)	.278 (.05)	.170 (.47)
Companionship	Black	-.070 (.86)	.282 (.35)	.352 (.48)
	White	-.088 (.59)	.389 (.00)	.477 (.02)
	Total	-.079 (.71)	.335 (.04)	.414 (.12)

Table entries are estimated regression coefficients with probabilities in parentheses.

FIGURE 5.4

CREATIVITY = F (POSITIVE PERCEPTION OF SELF)
REGRESSIONS BY TREATMENT AND RACE

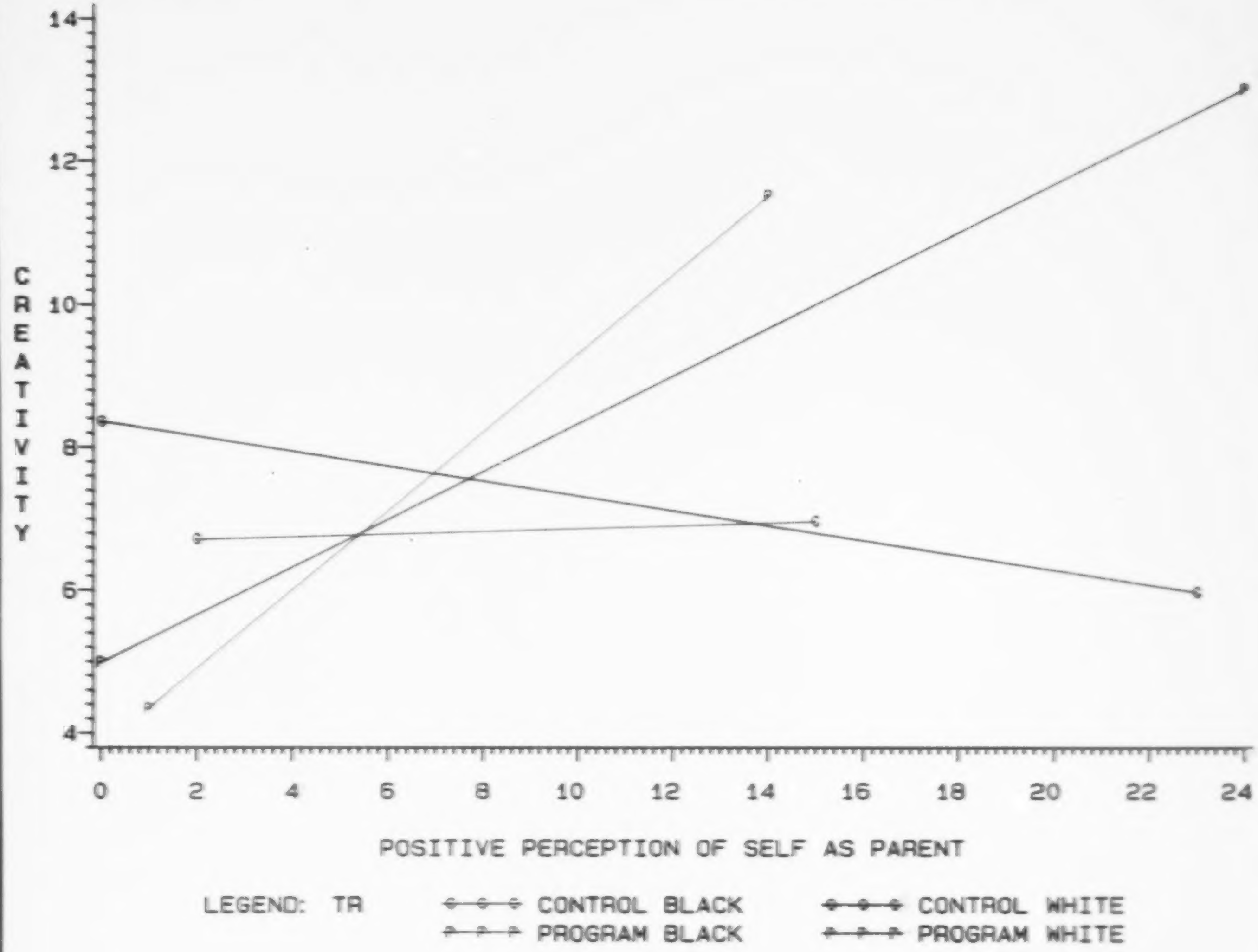


FIGURE 5.5
CREATIVITY = F (POSITIVE PERCEPTION OF SELF)
REGRESSIONS BY TREATMENT

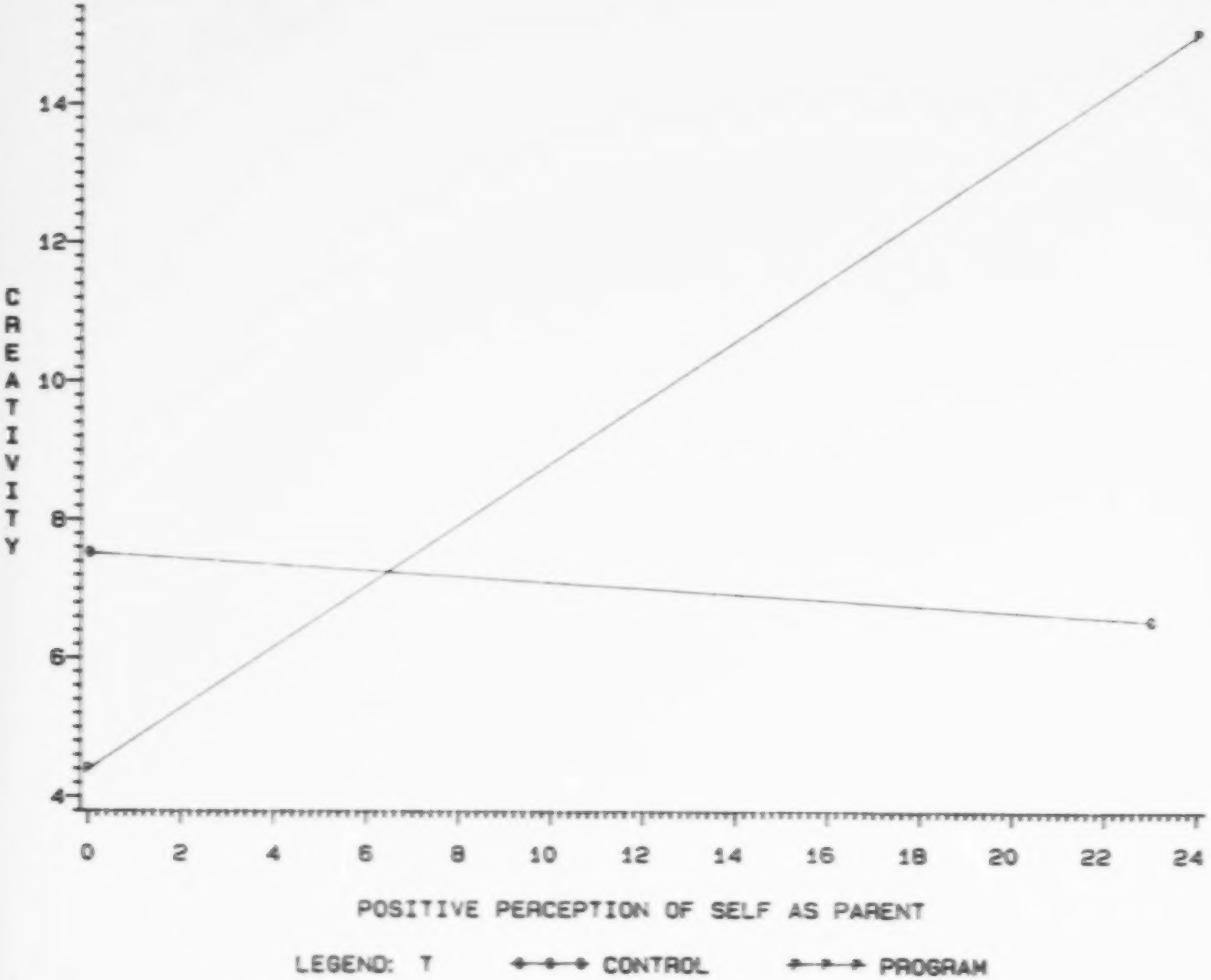
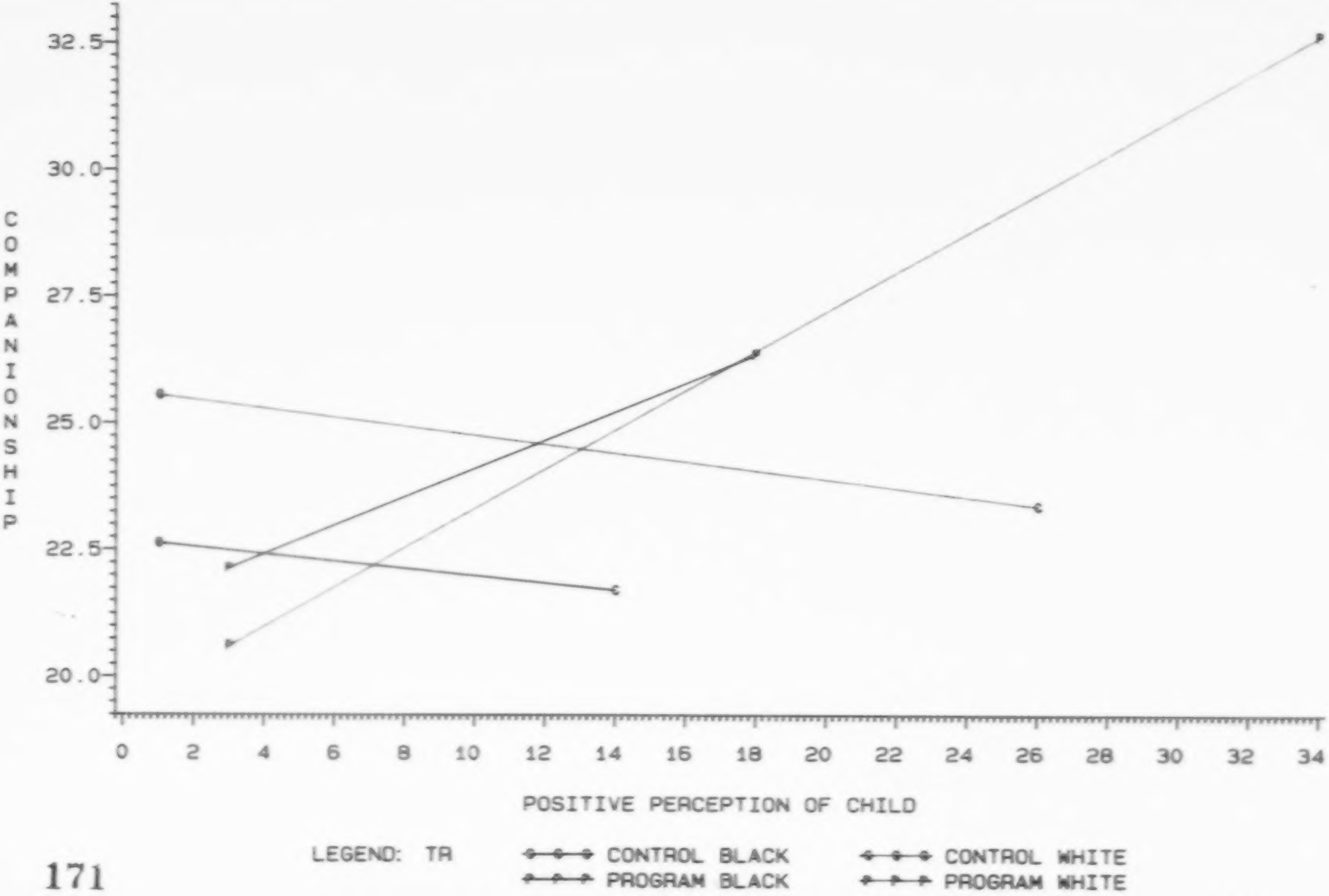


FIGURE 5.6

COMPANIONSHIP = F (POSITIVE PERCEPTION OF CHILD)
REGRESSIONS BY TREATMENT AND RACE



5.4.2 The Influence of Perceptions on the Child's Performance in School

The causal effect of perceptions on activities can be assumed to be fairly direct, in that the parent can initiate many if not most of the activities as a direct result of her perceptions. The relation between perceptions and the child's performance in school should be more tenuous, since some aspect of perceptions must first have an effect on the child (perhaps through activities) and then through the child result in altered school outcomes -- a more indirect process. This reasoning is borne out empirically: the results in this subsection are more spotty than the other regression results discussed in this chapter.

For perception of parenting and for positive perceptions of self as parent, there is a consistent result across a variety of cognitive and interpersonal school outcomes: positive regressions for single-parent families in the control group, especially whites, and flat (or less positive) regressions for program families. The difference between regressions (TP_1) is frequently significant. Since the program cannot cause the positive regression in the control group, the difference may be the result of sampling artifact or, alternatively, perhaps the positive relation is the normal state for this group, and the program caused a change to nonsignificance.

For negative perceptions of self as parent, there is one clear difference by program: there are consistent negative regressions (fewer negative comments associated with better school performance) for white program families (especially single mothers) and sometimes black families, resulting in a significant difference in regressions between program and control overall. This pattern holds for the set of cognitive report card variables, the cognitive motivation scale (V282), the interpersonal relations scale (V283), and assorted other variables. It should be kept in mind that since these are negative perceptions, a negative relation between them and school outcomes means that better performance in school by the child is associated with a less negative view of herself as a parent by the mother. The cognitive difficulties scale (V410), for which a higher value means greater difficulty in school, has positive regressions for program whites, consistent with the other variables. Table 5.5 shows the TR regressions for selected school variables, and Figures 5.7-5.8 show corresponding plots for the average report card score (V134) and the cognitive difficulties scale (V410).

Table 5.5

School Outcomes = f(Negative Perception of Self)

		Control	Program	Diff
Report Card Average (V234)	Black	.207 (.32)	.056 (.80)	-.151 (.62)
	White	-.008 (.93)	-.326 (.00)	-.318 (.03)
	Total	.099 (.38)	-.135 (.27)	-.234 (.16)
Cognitive Development Problems (V410)	Black	-.836 (.01)	-.066 (.83)	.770 (.07)
	White	-.041 (.75)	.310 (.05)	.351 (.09)
	Total	-.438 (.01)	.122 (.48)	.560 (.02)

Table entries are estimated regression coefficients with probabilities in parentheses.

Increased positive perceptions of the child are associated with better school performance and adaptation for white program families (e.g., the cognitive variables, V282, V284, and V289). There is also a fairly strong trend in the same direction for control whites. Thus, the program contrast for whites is typically not significant, although there is marginal significance for some school variables and two-parent whites do show a significant program difference. Regressions are positive in general (control as well as program), especially for white. Figure 5.9 shows the TR regressions for report card core subjects (V177).

Negative comments about the child are associated with less successful school performance, for all whites (program and control).

FIGURE 5.7

REPORT CARD AVERAGE = F (NEGATIVE PERCEPTION OF SELF)
REGRESSIONS BY TREATMENT AND RACE

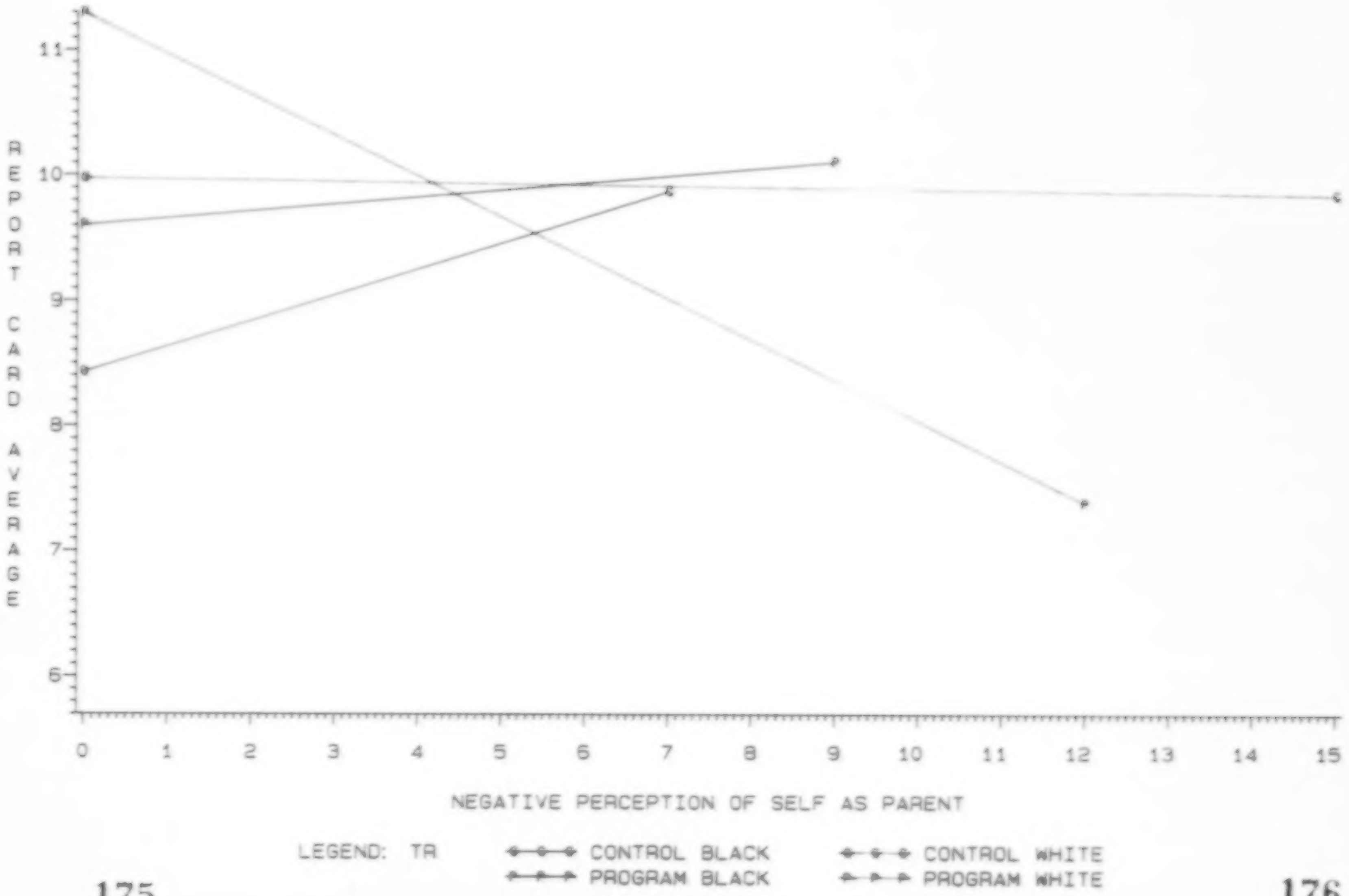


FIGURE 5.8

COGNITIVE DEVELOPMENT PROBLEMS = F (NEGATIVE PERCEPTION OF SELF)
REGRESSIONS BY TREATMENT AND RACE

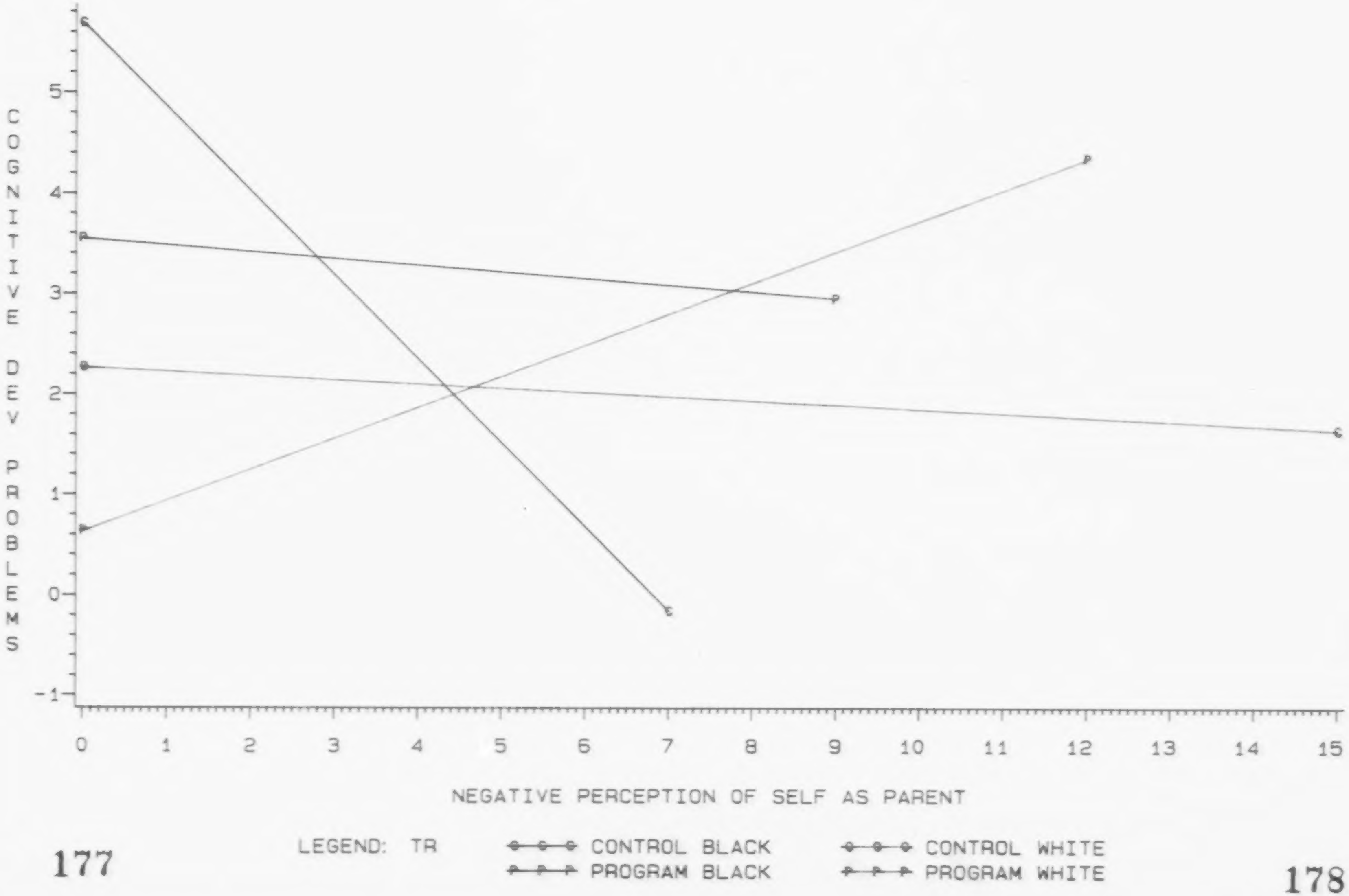
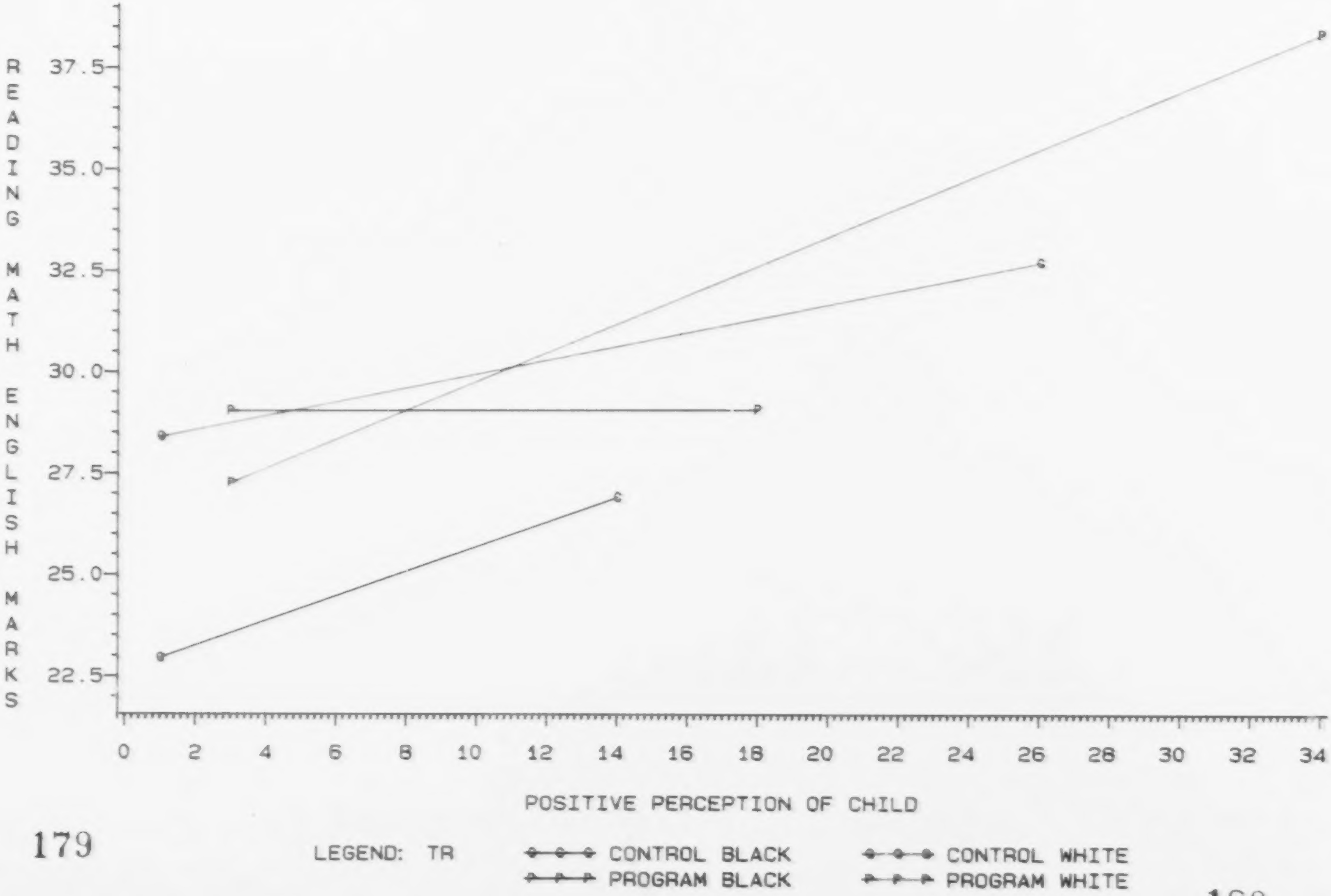


FIGURE 5.9

READING, MATH, ENGLISH MARKS = F (POSITIVE PERCEPTION OF CHILD)
REGRESSIONS BY TREATMENT AND RACE



5.4.3 Joint Activities and Performance in School

The attempt to improve the child's school performance through program-encouraged parent-child activities was one of the original primary purposes of the program. In Chapter 3, we presented some apparent program effects for school outcomes. This section examines the question of whether any of these program differences can be explained by joint activities. We demonstrate at least partial success in making a tentative link between these domains.

The question is examined in the TRP (program, race, family structure) model for the total sample. Mother's education also turns out to be of considerable importance in the analysis, but the married white sample is the only one large enough in which to make this split, with regressions on activities separately by education and the other factors. The TMS (program, mother's education, sex of child) model for this subgroup is the basis for analysis. Again, we consider activity measures of talk, creativity, tasks, and companionship, and the usual set of school variables.

The primary result is positive regressions across a broad range of school outcomes for two-parent white program families in which the mother has more than 12 years of education, for all 4 types of activities (but less strongly for tasks). These results are presented in detail below, but first we look at any results found to hold across additional family types.

Talk and creativity show few significant regressions for groups other than married whites in the program. Regressions for all program whites are positive for talk, but this is still dominated by the two-parent families. Creativity shows positive regressions for all whites for cognitive school variables.

Tasks shows overall program differences in regressions for the noncognitive areas, with positive slopes for program and flat or negative for controls; these regressions are not highly significant, but the differences between them are, especially for blacks. Table 5.6 and Figures 5.10 and 5.11 show these regressions for representative variables.

Table 5.6

School Outcomes = f(Tasks)

		Control	Program	Diff
Interpersonal Relations (V283)	Black	-.285 (.25)	.415 (.16)	.700 (.07)
	White	-.005 (.98)	.020 (.89)	.025 (.92)
	Total	-.145 (.38)	.217 (.19)	.362 (.12)
Personal Adjustment (V284)	Black	-.392 (.24)	.607 (.13)	.999 (.06)
	White	-.098 (.74)	.125 (.52)	.223 (.52)
	Total	-.245 (.27)	.366 (.10)	.611 (.05)
Social Maturity (V390)	Black	-.105 (.37)	.209 (.13)	.314 (.08)
	White	-.052 (.61)	.016 (.81)	.068 (.57)
	Total	-.026 (.31)	.113 (.12)	.139 (.08)
Cognitive Motivation (V180)	Black	-.312 (.06)	.186 (.34)	.498 (.05)
	White	.045 (.75)	.114 (.23)	.069 (.69)
	Total	-.133 (.22)	.150 (.17)	.283 (.07)
Time on Task (V179)	Black	-.420 (.03)	.146 (.51)	.566 (.05)
	White	.094 (.56)	.034 (.75)	-.060 (.76)
	Total	-.163 (.19)	.090 (.47)	.253 (.15)

Table entries are estimated regression coefficients with probabilities in parentheses.

FIGURE 5.10

PERSONAL ADJUSTMENT = F (TASKS)
REGRESSIONS BY TREATMENT AND RACE

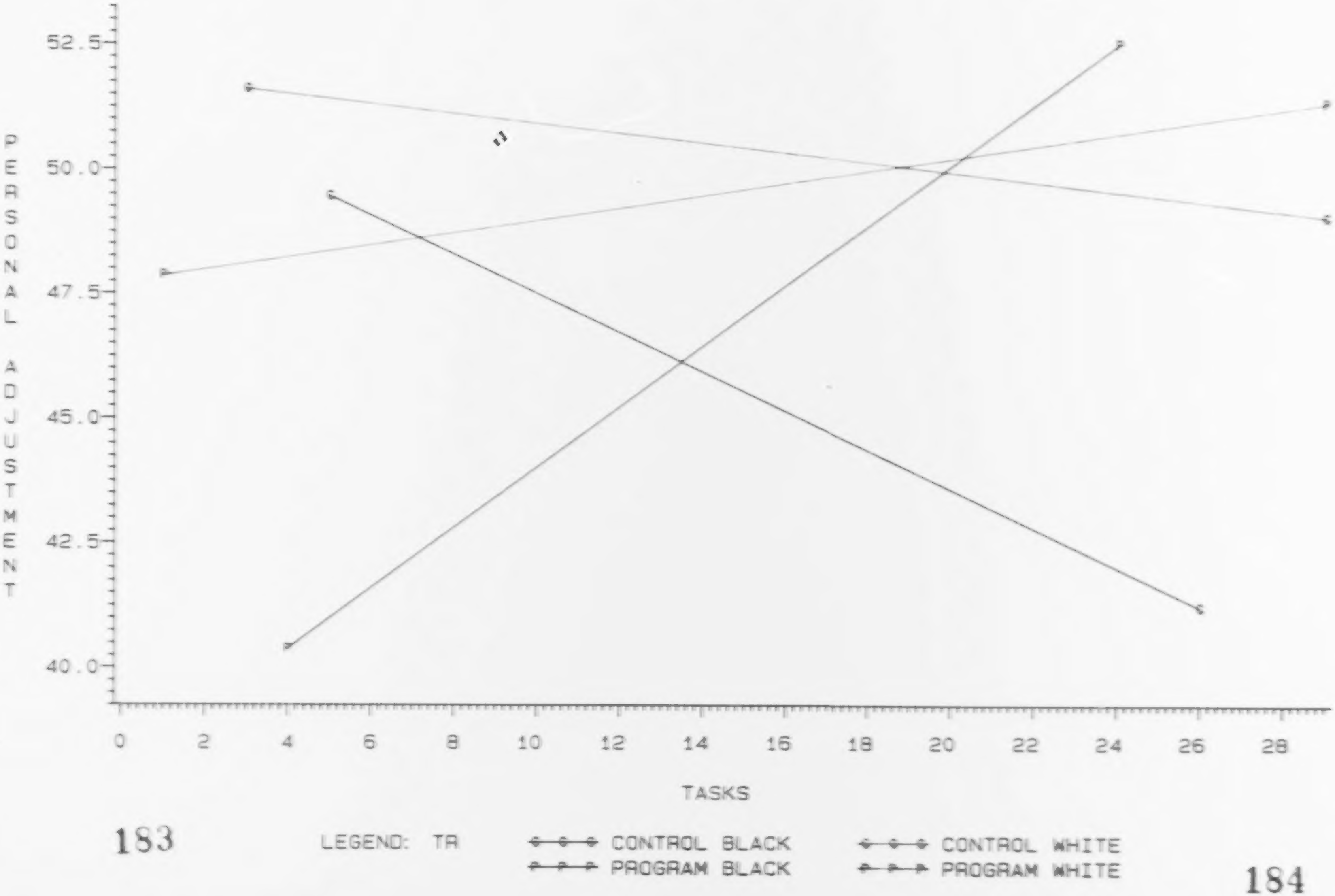
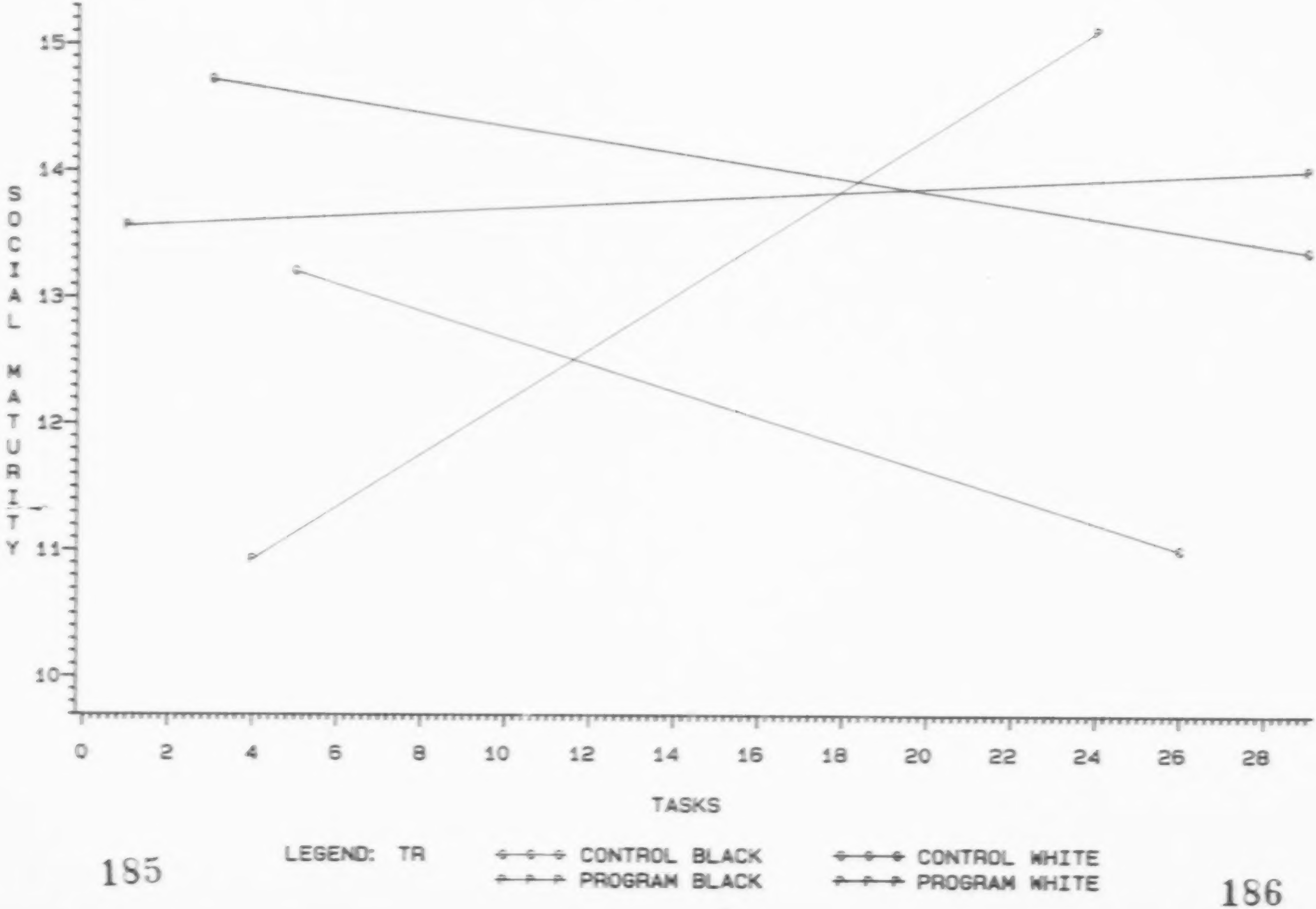


FIGURE 5.11

SOCIAL MATURITY=F(TASKS)
REGRESSIONS BY TREATMENT AND RACE



Companionship activities also show overall positive regressions for program families, and a negative trend for controls, but with a greater emphasis on cognitive outcomes than in the case of tasks. The largest differences are for single mothers (and the married whites with high education). Table 5.7 and Figures 5.12 and 5.13 show these regressions.

Table 5.7

School Outcomes = f(Companionship)

		Control	Program	Diff
Cognitive Motivation (V180)	Black	-.125 (.35)	.162 (.24)	.287 (.14)
	White	.057 (.62)	.176 (.04)	.119 (.41)
	Total	-.034 (.70)	.169 (.04)	.203 (.09)
Interpersonal Relations (V283)	Black	.056 (.78)	.310 (.14)	.254 (.38)
	White	.010 (.95)	.189 (.14)	.179 (.41)
	Total	.033 (.80)	.249 (.04)	.216 (.23)
Personal Adjustment (V284)	Black	-.019 (.94)	.472 (.09)	.491 (.21)
	White	.005 (.98)	.266 (.13)	.261 (.37)
	Total	-.007 (.97)	.369 (.03)	.376 (.12)

Table entries are estimated regression coefficients with probabilities in parentheses.

We now focus on the program-by-education groups within the married white sample. The high-education program mothers have a significant positive relation between school outcomes and number of activities. We can speculate about whether, if there were sufficient cases in other race and marital-status groups to compare educational levels, there would be similar findings. In the married white group, there are a few differences by sex of the child, but these do not alter the basic TM regression pattern.

FIGURE 5.12
PERSONAL ADJUSTMENT = F (COMPANIONSHIP)
REGRESSIONS BY TREATMENT AND RACE

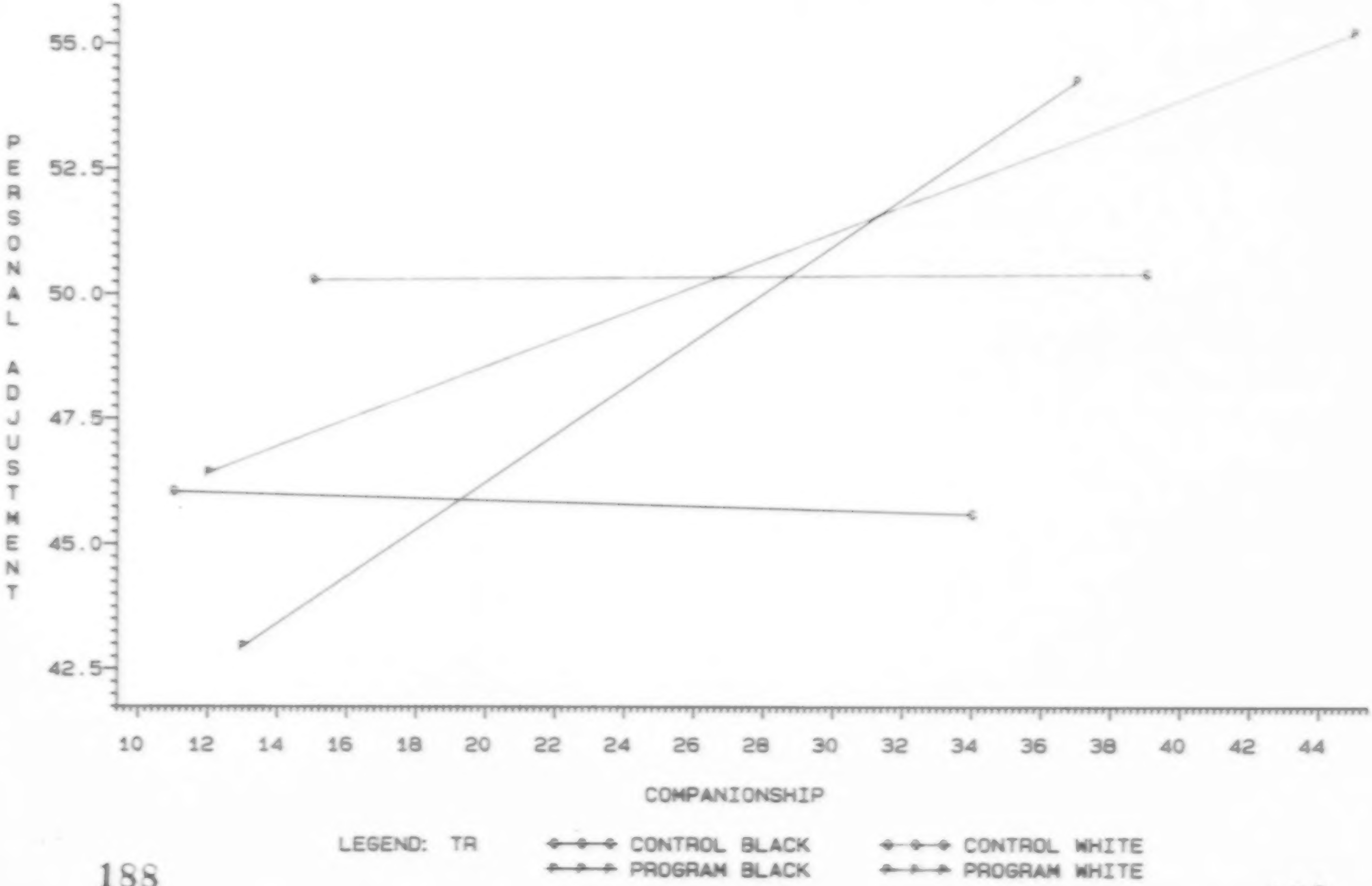
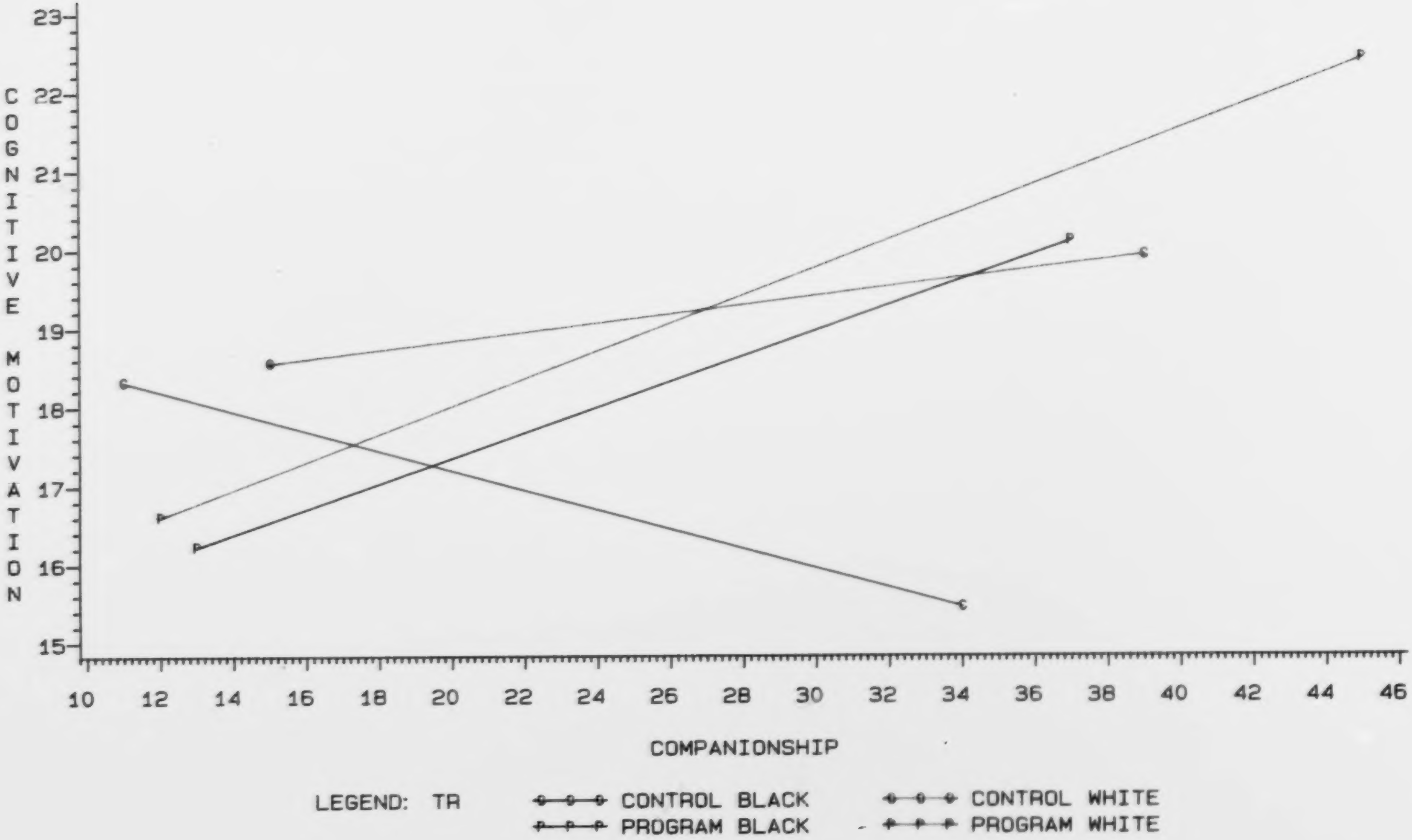


FIGURE 5.13

COGNITIVE MOTIVATION = F (COMPANIONSHIP)
REGRESSIONS BY TREATMENT AND RACE



Tables 5.8-5.11 show the estimated regressions for each of the 4 major activity types. Figures 5.14-5.16 show plots for selected variables. (The third plot, personal adjustment as a function of creativity, is shown averaged over levels of education, since it is significant as a main effect — for two-parent whites.)

5.5 DISCUSSION

The existence of a positive association between the child's activities with the parent and performance in school makes good sense and was one of the premises on which the project was founded. That this association holds more strongly for program than control families (in certain subgroups) gives support to one of our original hypotheses. Even without affecting the number of activities, it appears that the program has altered the impact these activities have on school outcomes. In addition, there are some indications that the type of activities makes a difference for which outcomes are altered. For example, task activities (for the total sample) have less effect on cognitive outcomes than on work habits and interpersonal relations, a result that has some degree of coherence.

The regressions have the general form typified by Figure 5.16. We cannot say with any certainty what these regressions would look like in the absence of the program intervention. They could look like any of the forms shown in Figure 5.17, even the fourth one, but it seems likely that the range of activity values for which there exist mean differences on school outcomes (see the discussion of Figure 5.3) would be smaller without the intervention, and thus at least part of the program difference in school performance may be due to activities within the home. The regression differences do not always correspond exactly to the groups for which there are mean differences, but there is enough overlap to give some support to the hypothesis.

Table 5.8

School Outcomes = f(Talk)
Two-Parent White Mothers

		Control	Program	Diff
Report Card Average (V134)	Low Ed.	.013 (.83)	-.056 (.41)	-.069 (.45)
	High Ed.	.064 (.60)	.158 (.01)	.094 (.49)
	Total	.038 (.57)	.051 (.26)	.013 (.87)
Average Core Marks (V173)	Low Ed.	-.019 (.76)	-.100 (.15)	-.081 (.38)
	High Ed.	.097 (.44)	.174 (.01)	.077 (.58)
	Total	.039 (.57)	.037 (.43)	-.002 (.98)
Reading, Math, English Marks (V177)	Low Ed.	-.118 (.54)	-.147 (.50)	-.029 (.92)
	High Ed.	.277 (.49)	.472 (.02)	.195 (.66)
	Total	.080 (.72)	.162 (.27)	.082 (.76)
Vocabulary (V391)	Low Ed.	.012 (.67)	.011 (.71)	-.001 (.97)
	High Ed.	.028 (.58)	.014 (.07)	.017 (.77)
	Total	.020 (.49)	.028 (.15)	.008 (.83)
Interpersonal Relations (V283)	Low Ed.	-.048 (.81)	-.008 (.97)	.040 (.89)
	High ed.	.247 (.50)	.617 (.00)	.370 (.36)
	Total	.099 (.63)	.305 (.03)	.206 (.41)
Personal Adjustments (V284)	Low Ed.	-.039 (.89)	.038 (.89)	.077 (.85)
	High Ed.	-.008 (.99)	.788 (.00)	.796 (.16)
	Total	-.024 (.93)	.413 (.03)	.437 (.21)
Social Maturity (V390)	Low Ed.	.011 (.91)	.081 (.42)	.070 (.51)
	High Ed.	.123 (.50)	.179 (.05)	.056 (.78)
	Total	.067 (.59)	.130 (.06)	.063 (.55)
Cognitive Motivation (V180)	Low Ed.	.049 (.72)	-.050 (.72)	-.099 (.61)
	High Ed.	.243 (.33)	.395 (.00)	.152 (.59)
	Total	.146 (.31)	.172 (.07)	.026 (.88)
Time on Task (V179)	Low Ed.	.009 (.95)	-.022 (.89)	-.031 (.89)
	High Ed.	.114 (.69)	.396 (.01)	.282 (.37)
	Total	.062 (.70)	.187 (.08)	.125 (.51)
Work & Study Skills (V175)	Low Ed.	.048 (.52)	-.064 (.45)	-.112 (.32)
	High Ed.	.057 (.71)	.176 (.02)	.119 (.48)
	Total	.052 (.54)	.056 (.32)	.004 (.97)

Table entries are estimated regression coefficients with probabilities in parentheses.

Table 5.9

School Outcomes = f(Creativity)
Two-Parent White Mothers

		Control	Program	Diff
Report Card Average (V134)	Low Ed.	.234 (.13)	.120 (.33)	-.114 (.56)
	High Ed.	-.040 (.79)	.419 (.02)	.459 (.05)
	Total	.097 (.36)	.270 (.01)	.173 (.25)
Average Core Marks (V173)	Low Ed.	.115 (.47)	.111 (.39)	-.004 (.98)
	High Ed.	-.067 (.67)	.466 (.01)	.533 (.03)
	Total	.024 (.83)	.289 (.01)	.265 (.10)
Reading, Math, English Marks (V177)	Low Ed.	.300 (.55)	.241 (.55)	-.059 (.93)
	High Ed.	.050 (.92)	1.348 (.02)	1.298 (.08)
	Total	.175 (.62)	.794 (.02)	.619 (.21)
Vocabulary (V391)	Low Ed.	.001 (.99)	.037 (.46)	.036 (.65)
	High Ed.	.058 (.34)	.097 (.17)	.039 (.67)
	Total	.029 (.50)	.067 (.12)	.038 (.54)
Interpersonal Relations (V283)	Low Ed.	.219 (.63)	.645 (.08)	.426 (.47)
	High Ed.	-.284 (.53)	.823 (.12)	1.107 (.11)
	Total	-.033 (.92)	.734 (.02)	.767 (.09)
Personal Adjustments (V284)	Low Ed.	-.087 (.89)	.815 (.11)	.902 (.27)
	High Ed.	-.338 (.58)	1.202 (.10)	1.540 (.11)
	Total	-.212 (.63)	1.009 (.02)	1.221 (.05)
Social Maturity (V390)	Low Ed.	.001 (.99)	.037 (.46)	.036 (.65)
	High Ed.	.058 (.34)	.097 (.17)	.039 (.67)
	Total	.197 (.37)	.477 (.03)	.280 (.37)
Cognitive Motivation (V180)	Low Ed.	.365 (.25)	.389 (.13)	.024 (.95)
	High Ed.	.029 (.92)	.564 (.12)	.535 (.26)
	Total	.197 (.37	.477 (.03)	.280 (.37)
Time on Task (V179)	Low Ed.	.021 (.95)	.389 (.13)	.233 (.61)
	High Ed.	.232 (.51)	.442 (.28)	.210 (.70)
	Total	.127 (.61)	.348 (.16)	.221 (.53)
Work & Study Skills (V175)	Low Ed.	.402 (.03)	.123 (.41)	-.279 (.24)
	High Ed.	-.188 (.30)	.420 (.05)	.608 (.03)
	Total	.107 (.41)	.272 (.04)	.165 (.37)

Table entries are estimated regression coefficients with probabilities in parentheses.

Table 5.10

School Outcomes = f(Tasks)
Two-Parent White Mothers

		Control	Program	Diff
Report Card Average (V134)	Low Ed.	.024 (.75)	-.001 (.99)	-.025 (.80)
	High Ed.	.168 (.28)	.129 (.09)	-.039 (.82)
	Total	.096 (.27)	.064 (.19)	-.032 (.75)
Average Core Marks (V173)	Low Ed.	.073 (.38)	-.028 (.68)	-.101 (.34)
	High Ed.	.045 (.79)	.117 (.15)	.072 (.69)
	Total	.059 (.52)	.045 (.39)	-.014 (.89)
Reading, Math, English Marks (V177)	Low Ed.	.077 (.77)	.005 (.98)	-.072 (.83)
	High Ed.	.357 (.48)	.310 (.22)	-.047 (.93)
	Total	.217 (.45)	.157 (.33)	-.060 (.86)
Vocabulary (V391)	Low Ed.	.024 (.46)	.010 (.69)	-.014 (.73)
	High Ed.	.086 (.18)	.028 (.36)	-.058 (.41)
	Total	.055 (.12)	.019 (.34)	-.036 (.38)
Interpersonal Relations (V283)	Low Ed.	-.046 (.85)	.129 (.49)	.175 (.56)
	High Ed.	.141 (.76)	.516 (.03)	.375 (.47)
	Total	.047 (.86)	.322 (.03)	.275 (.36)
Personal Adjustments (V284)	Low Ed.	-.186 (.57)	.161 (.53)	.347 (.40)
	High Ed.	.153 (.81)	.658 (.03)	.505 (.48)
	Total	-.016 (.96)	.409 (.04)	.425 (.30)
Social Maturity (V390)	Low Ed.	-.006 (.96)	.089 (.33)	.095 (.53)
	High Ed.	-.027 (.91)	.098 (.39)	.125 (.63)
	Total	-.017 (.90)	.094 (.20)	.111 (.46)
Cognitive Motivation (V180)	Low Ed.	.025 (.88)	.075 (.54)	.050 (.80)
	High Ed.	.552 (.08)	.362 (.02)	-.190 (.58)
	Total	.288 (.10)	.219 (.03)	-.069 (.73)
Time on Task (V179)	Low Ed.	-.140 (.44)	-.005 (.97)	.135 (.56)
	High Ed.	.336 (.34)	.275 (.12)	-.061 (.88)
	Total	.098 (.62)	.135 (.23)	.037 (.87)
Work & Study Skills (V175)	Low Ed.	.045 (.64)	-.004 (.95)	-.049 (.69)
	High Ed.	.145 (.45)	.164 (.08)	.019 (.93)
	Total	.095 (.37)	.080 (.19)	-.015 (.90)

Table entries are estimated regression coefficients with probabilities in parentheses.

Table 5.11

School Outcomes = f(Companionship)
Two-Parent White Mothers

		Control	Program	Diff
Report Card Average (V134)	Low Ed.	.098 (.27)	-.043 (.41)	-.141 (.17)
	High Ed.	.197 (.12)	.215 (.01)	.018 (.90)
	Total	.147 (.06)	.086 (.09)	-.061 (.50)
Average Core Marks (V173)	Low Ed.	.121 (.21)	-.038 (.50)	-.159 (.16)
	High Ed.	.102 (.44)	.205 (.03)	.103 (.52)
	Total	.112 (.18)	.084 (.12)	-.028 (.78)
Reading, Math, English Marks (V177)	Low Ed.	.309 (.30)	-.150 (.39)	-.459 (.19)
	High Ed.	.502 (.23)	.612 (.03)	.110 (.83)
	Total	.406 (.11)	.231 (.16)	-.175 (.57)
Vocabulary (V391)	Low Ed.	.039 (.30)	.004 (.85)	-.035 (.42)
	High Ed.	.057 (.28)	.035 (.32)	-.022 (.73)
	Total	.048 (.14)	.019 (.35)	-.029 (.46)
Interpersonal Relations (V283)	Low Ed.	.042 (.87)	.142 (.36)	.100 (.75)
	High Ed.	.776 (.04)	.609 (.02)	-.167 (.71)
	Total	.409 (.07)	.375 (.01)	-.034 (.90)
Personal Adjustments (V284)	Low Ed.	.000 (1.00)	.161 (.46)	.161 (.71)
	High Ed.	.754 (.15)	.713 (.04)	-.041 (.95)
	Total	.377 (.24)	.437 (.04)	.060 (.88)
Social Maturity (V390)	Low Ed.	.055 (.68)	.010 (.90)	-.045 (.77)
	High Ed.	.242 (.20)	.152 (.23)	-.090 (.69)
	Total	.149 (.20)	.081 (.28)	-.068 (.63)
Cognitive Motivation (V180)	Low Ed.	.117 (.53)	.071 (.51)	-.046 (.83)
	High Ed.	.614 (.02)	.367 (.04)	-.247 (.42)
	Total	.365 (.02)	.219 (.03)	-.146 (.44)
Time on Task (V179)	Low Ed.	-.140 (.44)	-.005 (.97)	.135 (.56)
	High Ed.	.471 (.11)	.305 (.13)	-.166 (.64)
	Total	.216 (.24)	.154 (.19)	-.062 (.78)
Work & Study Skills (V175)	Low Ed.	.132 (.23)	-.059 (.36)	-.191 (.14)
	High Ed.	.209 (.18)	.265 (.01)	.056 (.76)
	Total	.170 (.07)	.103 (.10)	-.067 (.55)

Table entries are estimated regression coefficients with probabilities in parentheses.

FIGURE 5.14

PERSONAL ADJUSTMENT = F (TALK)
REGRESSIONS BY TREATMENT AND EDUCATION
TWO PARENT WHITE MOTHERS

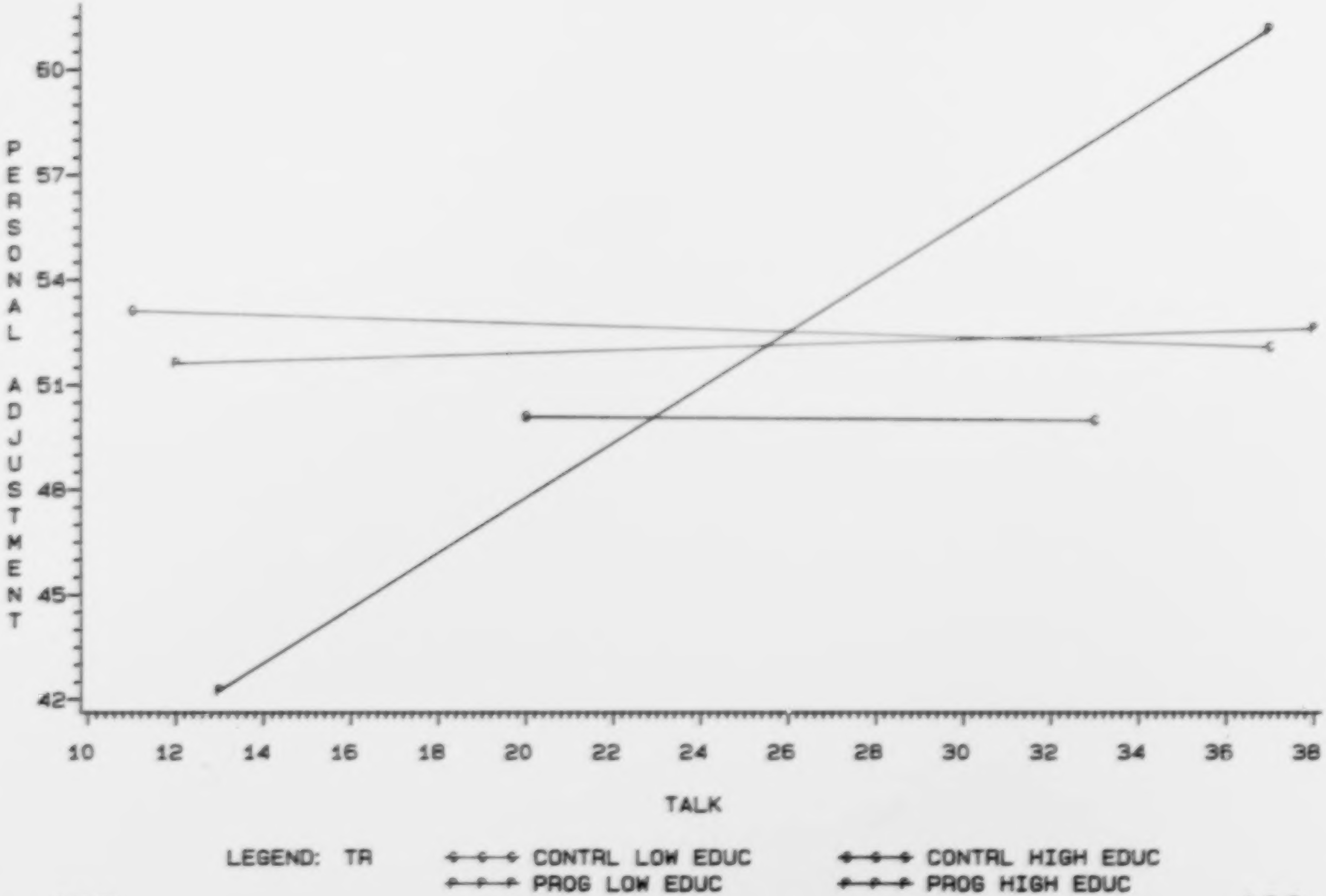


FIGURE 5.15

AVERAGE CORE MARKS = F(CREATIVITY)
REGRESSIONS BY TREATMENT AND EDUCATION
TWO PARENT WHITE MOTHERS

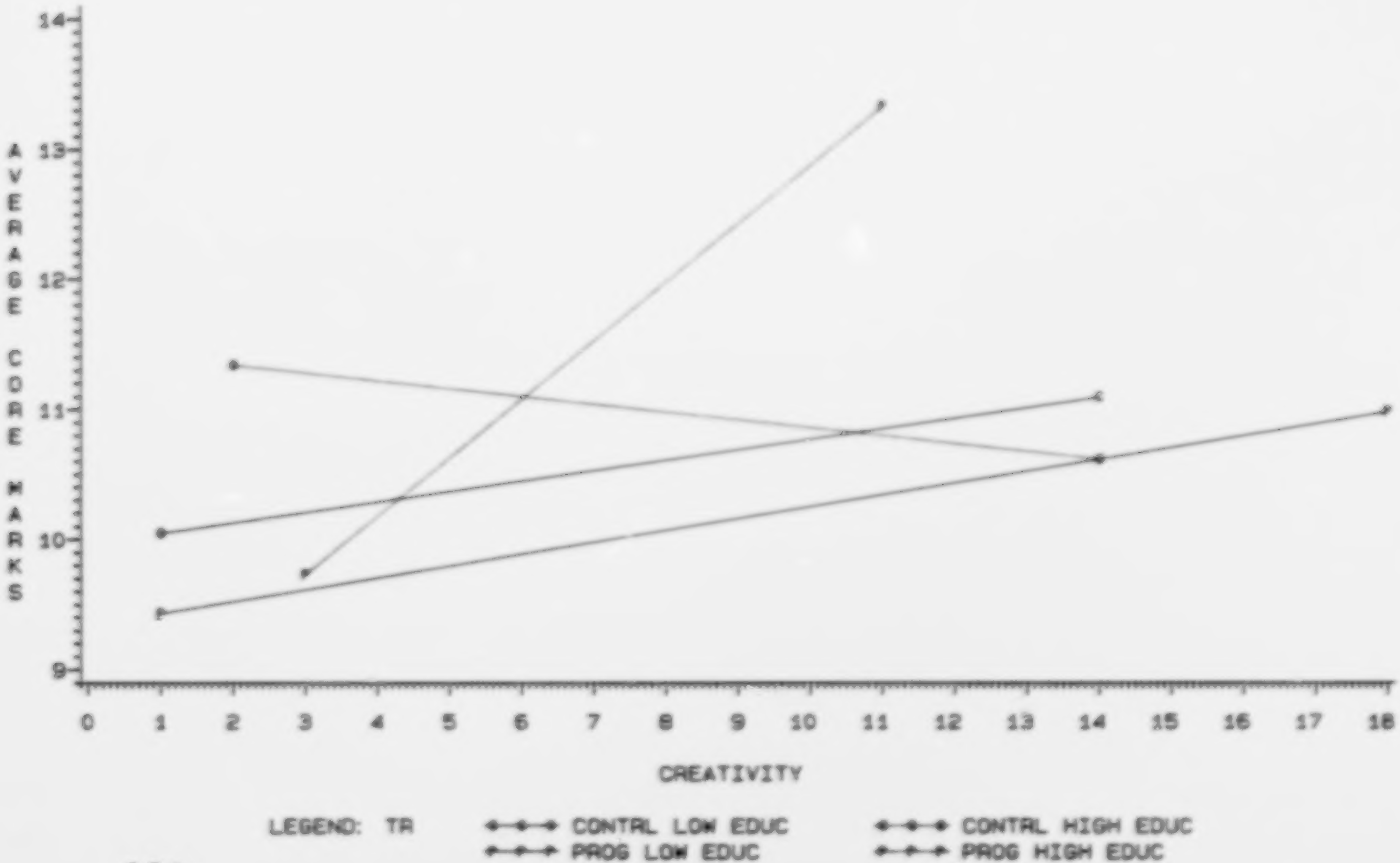
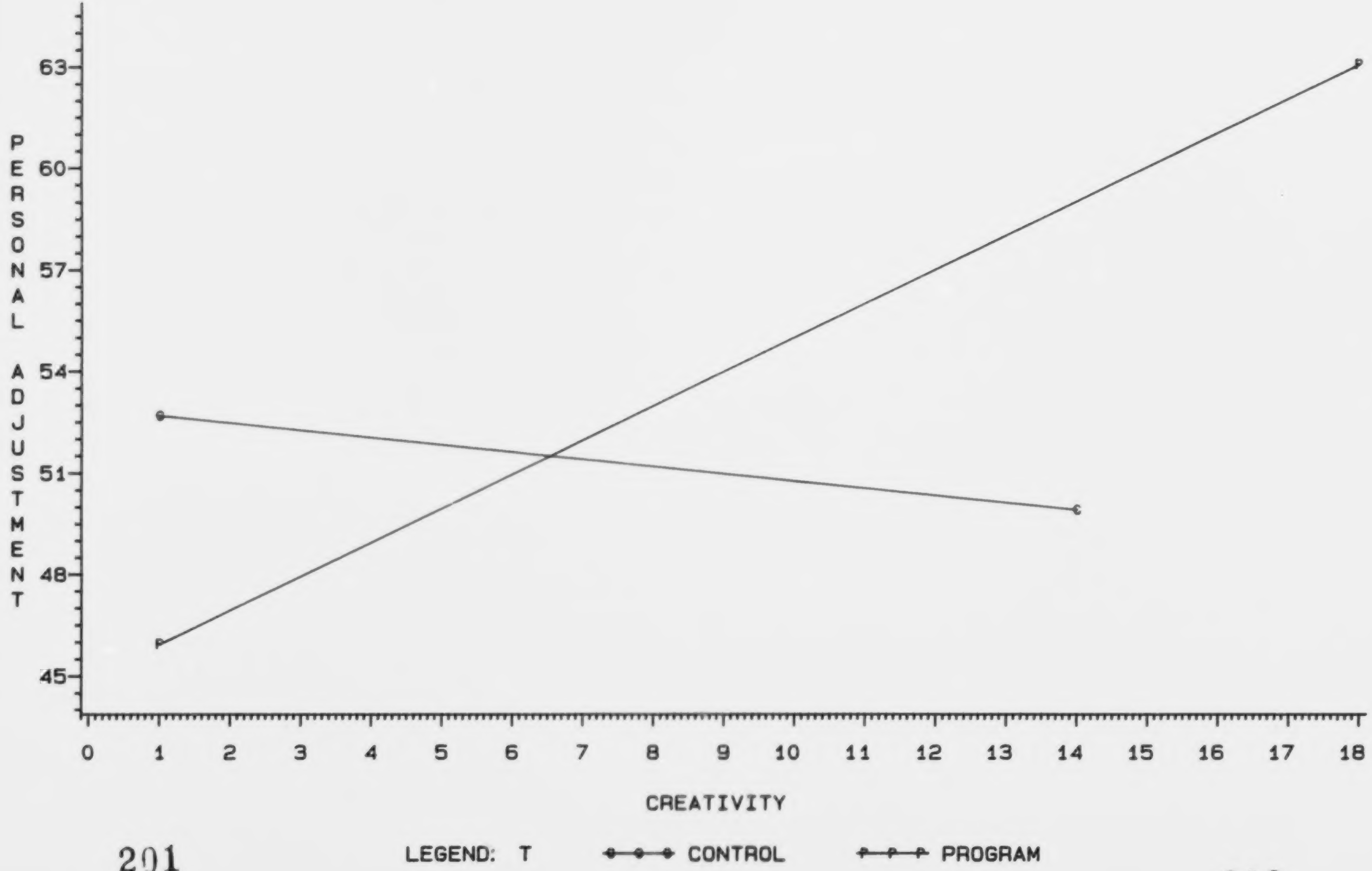


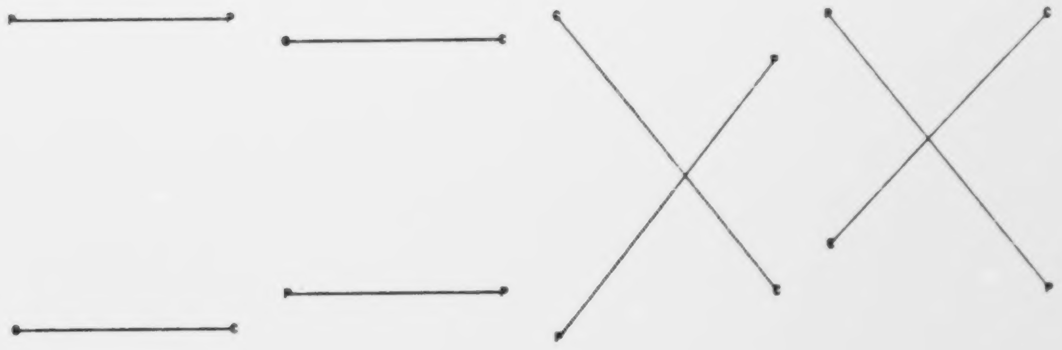
FIGURE 5.16

PERSONAL ADJUSTMENT = F (CREATIVITY)
BY TREATMENT
TWO PARENT WHITE MOTHERS



The fact that no program effects are seen in mean quantity of activities precludes total consistency of the results, but there may be differences in the quality of activities engaged in by the program families -- at least in having more of a focus on skills needed in school -- and this could produce the positive relation between activities and school, and, in turn, an effect on school outcomes. A qualitative analysis of the types of activities reported by program and control families is beyond the scope of this report, but it is something that should be pursued in an attempt to understand this process.

FIGURE 5.17
ALTERNATIVE RELATIONSHIPS IN THE ABSENCE OF INTERVENTION



Other future efforts should include a detailed look at other variables in these models, such as public and private schools and mother's work status. The activities variables need to be further refined, with some look taken in these models at the individual components and then alternative combinations of the components. This should also provide information relating to the quality-of-activities issue. The variables to be constructed from the content coding of activities may also be informative. The fathers' reports of activities will also be interesting to examine, since two-parent families seem to show the greatest results. Further attempts should also be made to control for Time I level of activities, even though we are handicapped by noncomparable measures across time.

A major topic for future exploration is to look jointly at variables from 3 (or more) domains -- in the immediate case, school performance, activities, and perceptions. Future work will make use of simultaneous equations analysis of these domains, in models of the general form

school = f (activities, perceptions, sociodemographic variables, T)
activities = f (perceptions, sociodemographic variables, T).

We will also look at models including crossproduct terms between activities and perceptions, with school measures as the dependent variables.

As an initial step, we have identified the families that are high on both perceptions and activities and those that are high on both activities and school outcomes (and similarly for the 2 combinations of low scores). These are the dominant cases in producing the positive regressions. There is considerable overlap in the upper-right quadrants and in the lower-left quadrant, for the 2 types of relations. This indicates that there are potentially interesting things to be learned from the simultaneous analysis of these 3 domains.

CHAPTER 6

PROGRAM INVOLVEMENT AND SYSTEMS OF INFORMAL SOCIAL SUPPORT

Moncrieff Cochran

> Hypothesis III: The effectiveness of the family as a childrearing system is enhanced by the existence of a supportive social network made up of relatives, friends, neighbors, and other persons outside the immediate family (NIE Proposal, Cochran, 1980)

The conceptual model guiding the planning, implementation, and now evaluation of this educational intervention includes the expectation that children in families involved in the program will perform better at school than those without access to program activities. The direct links between program assignment and various school outcomes were examined in Chapter 3. Equally of interest, from our ecological perspective, are any links that might be found between program involvement and the psychological and social environs of family members, especially as the more proximate focus might in turn be linked to school outcomes. Several of the most immediate of those dimensions were examined in Chapter 5: parental perceptions of self and child, and parent-child activities. Here in Chapter 6 the focus is on yet another aspect of the parental life space: the personal social network. The chapter begins with a conceptual orientation, brief comments regarding data preparation and variable selection, and reference to how baseline findings have influenced current analysis strategies. Then program-control differences in network change are presented, beginning at the total network level and proceeding through functional to primary relations. The chapter ends with a summary of findings and a number of concluding thoughts.

The social networks concept, as expressed above in our third general hypothesis, is of interest to us in program evaluation to the extent that an analogy can be drawn between it and informal support systems. At the level of metaphor, there appear to be similarities between the 2 ideas. Both involve sets of exchange relationships that are social in character. There is precedent for assuming that they are to some extent analogous (Stack, 1974; Gottlieb, 1981), and this assumption brings with it substantial scientific advantage. The social networks concept has been carried well beyond metaphor by scholars from both sociology (Fischer et al., 1977; Fischer, 1982; Wellman and Leighton, 1979) and anthropology

(Barnes, 1954; Bott, 1957; Boissevain and Mitchell, 1973), and is beginning to be utilized by others in psychology (Abernethy, 1973; Crockenberg, 1981) and family studies (Cochran and Brassard, 1979; Belle, 1982; Tietjen, 1982). Specific elements of social networks have been identified and operationalized by these scientists, buttressed by both theory and empirical research. We carry these concepts into our investigation of informal support systems. In so doing, however, we acknowledge the caution offered by Wellman (1981) in his paper titled "Applying network analysis to the study of support," that to assume all network ties are supportive is "to oversimplify the nature of ties and networks" (p. 3).

We also recognize, with Mitchell (1969), that there are differences within the "field" even in the terminology used and emphasis given in describing the key elements of the social network. Because it is difficult, if not impossible, to map all of the relational bonds existing among a set of individuals, virtually all of what researchers refer to as social networks turn out to be partial rather than complete. What is included in a given empirical study of social networks depends upon the nature of the research questions.

The networks-related question of interest for this evaluation is, "Has participation in the Family Matters program altered the social supports available to mothers in ways that have significance for their attitudes toward and activities with their children and for those children's performance in school?" This larger question is better subdivided into 2 smaller ones: "Has participation in the program altered social supports?" and, if so, "Are these changes reflected in parents' attitudes, parent-child activities, or child performance in school?" There is a small but growing body of evidence to support the assertion that certain network characteristics are related to parent and child outcomes (Abernethy, 1973; Crockenberg, 1981; Belle, 1982; Zelkowitz, 1981; Tietjen, 1979; Homel and Burns, 1981; Bee et al., 1982). We know of no instances, however, in which changes in network structure or functioning have been linked directly to program intervention, or where parent and child outcomes have been linked to these changes. This chapter will be concerned only with alterations in social supports attributable directly to the program.

Program-related links between social supports and child outcomes will be considered in Chapter 7.

In our last major report to the National Institute of Education (Cochran, Bronfenbrenner, Cross, Henderson, Weiss and Campbell, 1981), 5 major concepts were identified that seemed to have theoretical bearing upon both the intervention and the childrearing process. These were linked conceptually to a set of empirically grounded constructs. The details of that discussion are to be found in the earlier report (pp. 7.5-7.20). The 5 conceptual themes documented there continue to underlie our orientation. One, called social participation, refers to social connectedness as the foundation for the development of a well-integrated sense of self in relation to others, a commitment to other-oriented social values, and a concept of community. The second, social role relations, is especially concerned with the study of kinship systems and with the distinction between kin and nonkin. Emotional support refers to one aspect of the content of each relationship, and has been identified in recent studies (Belle, 1982; McAdoo, 1981) as especially important in relieving stress. Historical depth involves the maintenance of shorter- or longer-term relationships. There is a literature that addresses both the stabilizing and the constraining influences provided by long-term relationships with kin and nonkin (Allan, 1979; Salzinger, 1983). Finally, exchange specialization is concerned with how particularized or multipurpose the relationships of parents are with those to whom they turn in their social circles (Granovetter, 1973). Here the issue is whether the particular kind of assistance provided is important, or whether it is the feeling of knowing that one or more people can be counted on regardless of the nature of the need. Out of these themes we drew a number of specific constructs, 4 of which have been operationalized and examined with data in this evaluation. Those 4 constructs are listed in column 1 of Figure 6.1. In column 2 of the figure is a brief definition of each construct, and the variables defining that construct for the purpose this evaluation are provided in column 3.

Figure 6.1

Network Constructs and Variables

Construct	Definition	Variable names*
Centeredness	The degree that a parent's network is dominated by individuals in a particular role (kin-nonkin; neighbors, workmates, other friends)	Number of kin Number of nonkin
Resource Strength	The use made by parents of network numbers for the exchange of social and material resources	Function network size Amount of emotional support childrearing advice baby-sitting support financial support No. of members you borrow things from No. of members with whom you discuss work
Intensity	The affective depth of network ties	Primary network size
Supportiveness**	The degree to which the network is composed of members viewed by the parent as "making things easier for me".	No. of "difficult" members

* These variables are used to measure changes in social support between baseline and follow-up; comparison is made of means created by subtracting T_1 scores from T_2 scores. See also Technical Note 6.1.

** For reasons of time, this construct was not used in this assessment of the Family Matters program. The data are available and will be included in analysis to be submitted for publication in the near future.

Further elaboration of the meaning of the 4 constructs shown in Figure 6.1 can be found in our 1981 report to NIE. Descriptions of the variables listed in the figure are found in Technical Note 6.1.

6.1 DATA PREPARATION

Preparation of the social networks data for analysis involved 2 major steps -- variable creation and variable selection.

6.1.1 Variable Creation

The variable creation process required that raw data gathered at the level of the individual network member be summarized at the parent or respondent level. For instance, if a parent identified 7 members of her network as "primary," that designation was included as a part of the information stored separately for each network member in the raw data file. Variable creation began with the process of aggregating these separate data for each parent -- in this instance producing a count of 7 in the variable category labeled "size of primary network." Variables created directly with this aggregation procedure we termed "first order derived"; that is, they required no further manipulation prior to analysis. These variables consisted of simple counts (network size, amount of exchange content, number of difficult contacts, etc.), which were, in many instances, sufficient for the purposes of baseline analysis. However, further manipulation was required to produce the change and proportion variables used in this evaluation. Second- order derived variables were created to represent relations among aggregated (first-order) variables. Examples in this report include change scores created when aggregated baseline counts are subtracted from equivalent counts generated at follow-up, and proportions created when "new" primary membership is divided by all membership at the primary level. (See Technical Note 6.1.)

6.1.2 Variable Selection

Three strategies for selecting the variables to be used in final analyses were tested at baseline and carried over to the pre-post comparison. The first involved examination of the percentage of respondents in each subclass showing nonzero values for any given derived variable. Subclasses were defined by the intersection of design factors such as race, family structure, family income, and mother's education. The criterion of acceptability for continued use of the variable required that at least half of the respondents in a given subclass show a nonzero value on the variable. Use of this criterion reduced significantly the number of variables carried further into the analysis process.

Examination of the patterns of correlation among the remaining derived variables, and between those variables and key demographic characteristics of parents (family income, parents' education, mother's age, number of children), was the second strategy employed in variable selection. This process served a very useful construct-validating purpose to the extent that the patterns identified could be compared with the findings of others to provide an indication of whether we were identifying the same phenomena reported in the literature. It also permitted us to remove from further analyses those variables that bore little relation to anything else.

The third strategy used in variable selection was rarely applied; occasionally a variable was retained for its conceptual significance even though its frequency of-occurrence might have been rather low, or its relationship to other variables somewhat unclear.

With data gathered after completion of the Family Matters program, several other strategies came into play. It was important to reexamine the purposes of the parental empowerment program and what we knew about its implementation, in order to ensure the inclusion of variables with some likelihood of having been affected by such processes. And it made sense, where conceptually justifiable, to select variables that had proved productive in final baseline analyses. With the value of the baseline experience in mind, we turn now to a brief overview of relevant findings from that phase of the study and a discussion of their implications for this evaluation.

6.2 SUMMARY AND IMPLICATIONS OF BASELINE FINDINGS

One hundred and seventy-five pages of our baseline report to the National Institute of Education (Cochran et al., 1981) were invested in examining the social networks of the mothers in our sample. In addition to providing considerable evidence of construct validity for our network measures, those analyses also uncovered substantive findings that have implications for the ways that involvement with a program like Family Matters might influence the structure and functioning of mothers' networks. Those findings can be summarized as follows:

1. Single and married mothers were found to be living in different social worlds. Kinfolk dominated the networks of married women, while for single mothers there was a predominance of unrelated friends.
2. Differential access to network resources seemed to make more of a difference to single than married mothers, with "make a difference" defined as satisfaction with the network and positive perceptions of self and child.
3. Black mothers reported fewer ties with nonrelatives than did whites, perhaps because Syracuse is a predominantly white community.
4. There is much to be gained by distinguishing the primary network ("most important" contacts) from the more encompassing functional and total networks. The primary subset, while containing less size and content variation by socioeconomic level, family structure, or race, displayed more predictive power when examined in relation to perceptions of self, child, and network.
5. Both family income and level of mother's education affect network relations independent of race and family structure, a finding corroborated by other network researchers (Fischer, 1982; Allan, 1979).

The knowledge gained from these findings permits us to make specific predictions about the relationships of program involvement both with network maintenance and change (Hypothesis III) and with variation by type of family (Hypothesis VI). Based upon these earlier findings it is reasonable, first, to expect any program-related changes in networks to be most salient for family functioning if they occur within the most intimate circle that we call the primary network. This expectation stems not only from our own baseline data but also from the findings of others (Belle, 1982; Colletta, 1981; Crockenberg, 1981), which demonstrate the salience of a relatively few close relationships with others outside the immediate family. A second expectation is that program effects are most likely to occur for single mothers, because they are most reliant upon nonkin, that part of the network presumed to be most accessible to change (least obligatory). It is also possible, based upon the findings of Cross (1982), that white single mothers will be a little more advantaged than their black counterparts in this regard. If the networks of married mothers are to be affected by involvement in the program, then it makes sense to expect that effect to be found in relations with kinfolk, who dominate those networks and proved most central to them at baseline.

Baseline findings also remind us of the importance of income and educational level for network relations. An effort was made to hold those socioeconomic factors constant for program and control comparisons through the sample selection process, but data presented in Chapter 2 indicate that this goal was only partially achieved. Therefore, some statistical control for SES must be included in any tests of differences conducted with these network data. Two models were analyzed for this report: mother's education included as a fourth classification factor ($\leq$ 12 years vs. > 12 years); and education included continously, with regressions specified separately for the program-race-family- structure subclasses. The results of the 2 models corresponded closely to each other.

The reader will have recognized, from the descriptions of the home-visiting and cluster-building aspects of the Family Matters program provided in Chapter 1, that direct involvement with network-related processes (exchanges of information, services, and attitudes between families) was a primary goal of clustering and was given lower priority by home visitors. Thus it is tempting to predict that changes in networks as a function of program involvement would be more likely to occur among mothers involved with clusters than with those receiving only home visits. Such a prediction would, however, fail to recognize one major implication of our baseline findings: the network resources used by mothers are a function both of opportunity (provided by income, education, the workplace, marriage) and motivation (provided by father absence, self-confidence, ideology, stress level). It is possible that an effective home visitor will, through the building of confidence and modeling, stimulate an increase in positive relationships with others to a greater extent than might result simply from the greater opportunity provided by the cluster-building experience. It is also possible that different kinds of programming will appeal to different kinds of families, depending upon the nature of other demands upon their time and energy. Thus the issues of whether and for whom clustering or home visiting would have more impact were left as open questions rather than expressed as predictions.

Despite certain reservations about the demographic comparability of the families assigned to Programs I and II (see Chapter II), we analyzed changes in network relations in a model that distinguished the 2 programs (control, I, II) as well as in the more conservative model with the simple control vs. program distinction. Where the Program I vs. Program II distinction seemed to add to our understanding of the data, it is included in this presentation with appropriate cautions.

6.3 CHANGES IN SIZE OF THE TOTAL NETWORK

Tables showing the size of the mothers' overall networks at both baseline and follow-up are provided in Technical Note 6.2. These tables contain mean scores for subgroups defined by race and marital status. In general, the data contained in the tables indicate that the overall networks are larger for white than black mothers, especially if married, and that married mothers' networks tend to be larger than those of single mothers, especially if Caucasian. These findings were reported in our previous report to the National Institute of Education (Cochran, Bronfenbrenner, Cross, Henderson, Weiss, & Campbell, 1981), where we also pointed out that much of these differences can be attributed to corresponding differences in family income and amount of education. Cross (1982) also suggests that the networks of Afro-American mothers are smaller than those of their white counterparts because friendship circles are highly segregated, and the pool from which to draw black friends in a city the size of Syracuse, New York, is quite small. Further breakdowns by kin and nonkin are also provided in the technical note.

The data in Technical Note 6.2 also show considerable variation by program assignment within the subgroups defined by race and marital status. These differences are apparent at baseline as well as after the program was completed. They are caused in part by other factors not completely controlled for through the program assignment process (mother's education, family income), but more typically by natural variation in subgroups containing relatively few mothers. We needed a strategy for examining the impact of the program upon our 4 types of families (defined by marital status and race) that would be relatively free of preexisting differences among the groups, and so decided to use primarily difference scores created by subtracting network membership at baseline from membership at follow-up.[1]

The change scores associated with size of the total network are provided in Table 6.1. Where effects are associated primarily with one, but not the other, of the program approaches (home visiting or clustering), this will be noted in the text. All data in this and subsequent tables are expressed as mean numbers of individuals added to or removed from the networks of given subgroups. The sample size for these analyses was 222. There were 3 cases from the total Time 2 sample as given in Chapter 2 that did not have network data from Time 1.

One fact immediately obvious from the table is that the size of the overall network has not necessarily increased with time. Three of the 4 changes in the control group are in the direction of smaller networks, although only marginally so when compared with the overall mean sizes shown in Technical Note 6.2.

White, single mothers in the program showed a relative increase over time in size of the overall network that differed from the appropriate control group at a significance level of .07 in an analysis of covariance adjusting for mother's education. Mothers in the cluster-building program (Program II) contributed most to this difference. A program-related difference did not appear with single, Afro-American mothers, nor was it present for either of the married groups.

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[1] We do recognize the possibility of differential potential for change caused by ceiling effects and other constraints imposed by the demands inherent in maintaining network ties. These forces would presumably be most likely to effect mothers with larger networks at baseline, and will be kept in mind as findings are interpreted.

Table 6.1

Change in Size of Total Network:
All Members

		Control	Program
Black	Single	-.53	-.11
	Married	-.50	.08
White	Single	-.94	2.48
	Married	2.46	1.13

Breaking the overall network down further, we would expect changes in single mothers' networks to be manifested more with nonkin than with relatives. The kin/nonkin comparison is shown in Table 6.2, and confirms that expectation. Interestingly, for these white, single mothers an increase in nonkin was accompanied by a decrease in number of kin over time. This decrease in kin is not seen for any of the other subgroups. Our control-program comparison of nonkin shows a difference with p = .07. This difference cut across both program types. The effect was not seen in the black sample with single mothers, nor were any differences approaching significance found for married mothers of either race.

Two decisions are made by mothers that contribute to the size of the total network at follow-up: they add members who have become valued acquaintances in the interim, and they drop those included at baseline who are no longer viewed 3 years later as "making a difference." It is of interest from a family supports perspective to know whether the program has affected network size by stimulating the addition of new members, or simply by slowing the removal of old ones. To address that question we look in Table 6.3 at the number of new members added to mothers' networks during the period when the program was under way. These data are presented for both kin and nonkin.

Table 6.2

Change in Size of Total Network: Kin/Nonkin Comparison

		Kin		Nonkin	
		Control	Program	Control	Program
Black	Single	.16	.00	-.68	-.11
	Married	.10	.62	-.60	-.54
White	Single	-.69	-.56	-.25	3.04
	Married	.28	.06	2.18	1.09

Table 6.3

Number of New Members in Total Network:* Kin/Nonkin Comparison

		Kin		Nonkin	
		Control	Program	Control	Program
Black	Single	.53	.33	2.95	3.17
	Married	.20	1.46	2.90	3.54
White	Single	.69	.91	3.88	8.39
	Married	1.09	1.06	5.94	5.19

* New members are those individuals who were included at follow-up but not at baseline.

The data in Table 6.3 need to be considered in relation to those in the previous table. The numbers of new kin added to the networks are rather small for all 4 subgroups, and all of the subgroups in Table 6.3 show a substantial number of new nonkin members at follow-up, 3 years after baseline data collection. However, the data in Table 6.2 showed little overall change in network size over time for all but white, single parents, indicating that mothers in the other subgroups gave up roughly as many network members as they acquired during that period. The relative increase in newly acquired nonrelatives by the unmarried white mothers in the program showed a highly significant difference ($p \leq .001$) when compared with the change that occurred for the control subgroup. It is reasonable to conclude, based upon this evidence, that program participation had its effect on these single mothers primarily by increasing the acquisition of new membership rather than reducing the loss of network members over time.

6.4 CHANGES IN THE FUNCTIONAL NETWORK

The reader will remember that the functional network is that subset of the total network made up of people identified by the mother as providing support in at least 1 of the 7 possible content areas (see Figure 6.1). Based as it is upon the identification of exchange content, the functional network is inclined to be somewhat smaller than the network as a whole. Subgroup means for size of the functional network are provided in Technical Note 6.2 for both baseline and follow-up. The baseline data parallel those for the total network quite closely in terms of their general patterns, with white networks larger than those of black mothers and the networks of married mothers generally larger than those reported by single women. However, for single mothers the picture is altered somewhat by the program. These comparisons are shown as change scores in Table 6.4. Two patterns deserve recognition in these data, although neither of them is more than a statistical trend when compared with controls. Black single mothers show a noticeable increase in network membership reported as engaged in supportive exchanges ($p = .07$).

Table 6.4

Change in Size of Functional Network:
All Members

		Control	Program
Black	Single	.89	2.83
	Married	1.40	.85
White	Single	-1.19	.91
	Married	.83	-1.19

White married mothers in the program show a decrease in number of functional members, which approaches statistical significance if compared with the appropriate controls (p = .12).

Again it is instructive to distinguish relatives from nonkin. Those data are shown in Table 6.5. The first striking feature of this table is the number of negative signs appearing for the kin means. Closer inspection of the data for relatives reveals that the means for all 4 white subgroups have grown smaller with time, while this is true in none of the 4 black groups. This is reflected in a statistically significant difference ($p \leq .05$) betweeen the overall black and white means (B = +0.5; W = -1.0), controlling for mothers' education. In general, then, it appears that black mothers become somewhat more involved with kinfolk over time during this phase of their lives, while white mothers cut back on that involvement to some degree.

From the programmatic standpoint, no kin-based comparisons with control subgroups show differences that approach statistical significance. In the case of nonrelatives, however, both black and white single mothers showed an increase greater than that which occurred in the control group (p = .08 for each subgroup). Program I appeared to be more effective for the black mothers, whereas with the white mothers, Program II was.

Table 6.5

Change in Size of Functional Network:
Kin/Nonkin Comparison

		Kin		Nonkin	
		Control	Program	Control	Program
Black	Single	.05	.83	.84	2.00
	Married	.70	.85	.70	.00
White	Single	-.62	-1.56	-.56	2.48
	Married	-.48	-1.13	1.31	-.04

Following up on the reduction in size of the overall functional network that seemed to accompany program involvement for white married mothers, the data in Table 6.5 suggest that this program effect is occurring primarily with respect to nonrelatives. Statistical comparison with the appropriate control group showed a trend toward significance (p = .14).

6.4.1 The Content of Exchanges

Six categories of network exchange content were examined for each respondent: childrearing advice, babysitting, borrowing, financial assistance, job-related exchange, and emotional support. From the standpoint of program impact, the interest is in change over time in the number of network members available to the mother for each content category. Considering the 6 content areas irrespective of program involvement, several can be expected to have become less salient for mothers as their children grew older, while the passage of time may have increased the salience of others. For instance, babysitting and childrearing advice may have declined somewhat in importance for parents with school-aged children, but older children and a deepening recession may have brought added significance to the workplace and finances. The program itself, with such an emphasis on cluster-building at the neighborhood level, would be expected to have had particular impact on patterns of borrowing among nonkin.

The data pertaining to changes in the number of network members providing each type of support are presented as subgroup means in Tables 6.6 (kin) and 6.7 (nonkin). In interpreting these data, we begin with single mothers, where indications of a program effect have already been reported for number of nonkin at the total and functional network levels. White, single mothers included in the program reported more nonrelatives (Table 6.7) with whom they engaged in borrowing ($p = .07$) and emotional support ($p = .08$). There is also some sign in both tables that financial support was eroded somewhat less for white, single mothers in the program than for their control-group equivalents ($p_{kin} = .16$; $p_{nonkin} = .17$). And in the case of those working outside the home, there was an increase in work-related support from nonkin in favor of the program that reached statistical significance ($p \leq .05$).

The pattern for black, single mothers is similar to that for whites, although not quite as consistent. Effects in favor of the program are seen in Table 6.7 for borrowing ($p_{nonkin} \leq .05$) and as a trend for emotional support ($p_{nonkin} = .14$). In the case of work-related support, however, it is the control-group mothers who report a substantial increase from kin, while the program mothers report no appreciable change ($p_{kin} = .01$ in favor of controls).

There was some indication, reported earlier, that participation in the Family Matters program might have been associated with limits to the increase in size of functional networks for married mothers, and especially white, married mothers. For these mothers, the same pattern appears with reports of borrowing activities: those in the control group report an increase in borrowing from relatives (Table 6.6), while program mothers indicate no real change ($p_{kin} = .09$ in favor of controls). A somewhat similar pattern can be seen for black, married mothers with respect to advice, but involving primarily nonrelatives ($p_{nonkin} = .05$; $p_{kin} = .17$, both in favor of controls).

We had also noted earlier a general tendency on the part of white mothers, irrespective of program, to reduce the number of kinfolk in the network over time, a pattern not reported by black mothers. This same pattern is especially evident here for single mothers in relation to financial support, where black single mothers show a mean increase of 1.3 relatives while their white counterparts report a decrease of 1.1. This difference proves highly significant as a race-by-family-structure interaction ($p \leq .001$). The relevance of this finding is enhanced by the fact that the U.S. economy was experiencing a sharp recession during the time period between our data collection points.

6.5 THE PRIMARY NETWORK

The primary network is made up of those people from the total membership whom the mother identifies as "most important" to her (Technical Note 6.1). Reference was made earlier to the fact that many students of social support have confined their investigations to these very intense ties and attest to their importance (Belle, 1982). The mean sizes of various primary networks in our 12 subgroups are shown for both baseline and follow-up in Technical Note 6.2. Changes over time are captured as difference scores in Table 6.8.

Most apparent when comparing these findings with overall changes at the functional level is the absence of negative values; there has been an increase in the size of the primary network over time even for mothers in the control group. These data suggest that in general mothers expand their involvement with intimate relationships outside the immediate family as they proceed through this stage in the family life cycle[2]. As many as 3 explanations for this change are possible, and they could occur singly or in combination. Perhaps the increase between baseline and follow-up consists of new acquaintances met in the interim, who have become close friends and been added to an otherwise stable core of intimates. Or maybe the change is more dramatic, with past friends removed from the primary circle and replaced by a larger number of newcomers. Or it could be that there is no change in the membership of the overall network at all,

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[2] We must be careful not to overgeneralize. Perhaps these increases are historically bounded -- a function of the deviation in the economy that occurred during this period and the increased stress accompanying it.

Table 6.7

The Content of Exchanges: Change in Number of Nonkin by Content Category

	Black				White			
	Single		Married		Single		Married	
	Control	Program	Control	Program	Control	Program	Control	Program
Rearing Advice	1.53	1.11	1.70	-1.62	-.75	.09	.63	-.04
Babysitting	.10	-.44	-.20	-.31	-.56	1.13	.18	.13
Borrowing	.21	2.61	1.00	.62	-.69	2.56	1.24	.43
Financial Assistance	.37	1.00	-.30	.31	-.75	.09	-.13	-.16
Job Related*	1.00	2.20	-.33	.75	-2.38	2.28	.85	2.33
Emotional	-.05	1.17	-.10	.54	.00	1.43	.63	.52

*Calculated only for those mothers employed outside home at follow-up (n = 68).

Table 6.6

The Content of Exchanges: Change in Number of Relatives by Content Category

	Black				White			
	Single		Married		Single		Married	
	Control	Program	Control	Program	Control	Program	Control	Program
Rearing Advice	1.32	.22	2.00	-.77	-.12	-.48	.48	.67
Babysitting	.74	.28	1.30	-.31	.12	-.56	.48	.48
Borrowing	.21	.56	1.00	.31	-1.06	.22	.81	-.36
Financial Assistance	1.74	.94	.30	.62	-1.50	-.70	.09	-.20
Job Related*	5.00	-.40	.00	-.25	-.25	-.28	.46	.44
Emotional	1.21	.50	.90	.31	.00	-.78	.04	.10

*Calculated only for those mothers employed outside home at follow-up (n = 68).

Table 6.8

Change in Size of Primary Network:
All Members

		Control	Program
Black	Single	4.10	3.89
	Married	2.90	3.62
White	Single	2.44	5.35
	Married	3.83	4.65

but simply a greater appreciation of those already there at the less intimate level and therefore inclusion of more of them as primary the second time around. These several possibilities will be examined with data later in the chapter.

Whatever the explanation for the general growth of the primary network over time, it seems to have been further stimulated in some instances by involvement with the Family Matters program. These effects were somewhat apparent in certain cells of Table 6.8, but can be understood most clearly via the kin/nonkin distinction, which is provided in Table 6.9.

Table 6.9

Change in Size of Primary Network:
Kin/Nonkin Comparison

		Kin		Nonkin	
		Control	Program	Control	Program
Black	Single	2.79	1.28	1.32	2.61
	Married	1.30	2.31	1.60	1.31
White	Single	.81	1.61	1.62	3.74
	Married	1.07	2.84	2.76	1.81

Here we find a pattern that is becoming familiar: program effects for single mothers expressed via unrelated friends. This effect for single parents as a whole appears as a program-by-family-structure interaction, and is highly significant ($p_{nonkin} \leq .01$). It also appears for each subgroup (white $p_{nkin} = .05$; black $p_{nkin} = .08$) and is manifested most strongly for Program I in comparison with controls. More of a surprise, because it had not been apparent at other levels of the network, is a positive program effect seen with kinfolk for white, married mothers ($p_{kin} \leq .05$), which was somewhat stronger for Program II than Program I. The pattern of kin means for married black mothers is similar to that for whites, although the comparison does not approach significance due in part to much smaller cell sizes.

These program effects seen at the primary level of the network are more pervasive than any identified in the functional or total networks. A better understanding of the mechanisms at work can be provided by pursuing a set of distinctions made several paragraphs earlier. Are these increases in numbers of "most important" relationships simply greater appreciation for people already in the network at baseline (change in perception), or do they represent actual additions to the networks occurring during the time when the program was under way? We can shed light on these 2 possibilities by examining the mean numbers of primary network members present at follow-up who were not included at all in the networks 3 years earlier. Those data are shown as means in Table 6.10.

As usual, changes can only be understood by doing separate comparisons for kin and nonkin. An effect favoring the program, seen earlier at the overall primary level for kinfolk, appears more strongly here with "new" primary kin. This difference reached significance for black married mothers ($p_{kin} \leq .05$). The effect appears to be associated primarily with less educated mothers and with Program II.[3]

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[3] In Chapter 2 we alerted the reader to an alternative strategy for controlling the separate effects of mother's education on network change, to be used in those instances where use of education as a continuous covariate produced nonhomogeneous regressions. That alternative, to include in the analysis a factor representing different levels of mother's education, was applied here and explains why effects are reported in terms of mothers with different educational levels.

Table 6.10

Number of New Members in Primary Network*

		Kin		Nonkin	
		Control	Program	Control	Program
Black	Single	.21	.28	1.00	2.06
	Married	.10	2.31	1.00	1.00
White	Single	.62	.61	1.69	4.00
	Married	.41	.64	1.54	1.39

*New members are those who were present at follow-up but not at baseline

As might expected, the strongest effects for single mothers appear with nonkin. They were positive and significant for better-educated, single, program mothers of both races (both probabilities less than .01), and approached significance for less educated white, single women. Program I seemed to contribute most to this more rapid development of intimate friendships.

The data in Table 6.10 leave little doubt that the changes in size of the primary network over time included the addition of some individuals who were nowhere to be found in the networks at baseline, and that for some types of mothers these additions were more plentiful with program participation than without. It can also be seen, comparing Table 6.10 with Table 6.9, that in most instances the overall change between baseline and follow-up was greater than that accounted for by the addition of new members, leaving us to conclude that a certain amount of the growth over time is due also to changed perception of membership included at both time points. It is interesting to note an apparent difference in the effect of the program on the primary network ties of black and white married mothers with kin. Black mothers in the program report new membership in the primary network, which largely accounts for their overall increase in membership at that level. However, white married mothers show the program-related increase in primary network size, but not new membership, suggesting that for them the program has primarily altered their perceptions of kin membership already present at baseline (but not at the primary level) rather than leading to the inclusion of kin not previously included in the network.

6.6 SUMMARY AND CONCLUSIONS

The research question guiding the organization of this chapter was, "Has participation in the Family Matters program altered social supports?" An affirmative response can be given with some confidence based upon consideration of what we believe are reliable and valid data. But the findings are not that simple. Mothers in some circumstances were affected more than those in others, and those circumstances also influenced the aspects of network structure manifesting change. The summary that follows is organized to highlight those factors that influenced both the magnitude and the nature of changes associated with participation in the program.

6.6.1 White, Unmarried Mothers

Our data indicate that single mothers were especially responsive in network terms to program involvement, and that this responsivity was more evident with unmarried Caucasian women than with their Afro-American counterparts. White, unmarried mothers in the program reported more nonrelatives in their networks, overall and at the functional and primary levels, than did their controls. A closer look at the content of exchanges revealed involvement with larger numbers of people around borrowing, work-related and emotional support, always with nonkin. At the primary level, change mostly consisted of the addition of nonrelatives nowhere present in the network 3 years earlier (baseline). Overall these women reported contact with somewhat fewer relatives at follow-up than had been the case at baseline.

6.6.2 Black, Unmarried Mothers

The women from this subgroup who participated in the program also added a significant amount of new nonkin membership to that portion of the network they thought of as "most important" (primary). They were less likely, however, to report increases at the functional level, and the increase in new primary membership was almost as apt to involve relatives as nonrelatives. This reflected a more general tendency to rely upon kinship ties by black than by white women.

6.6.3 Black, Married Mothers

With married women, program effects were much less pervasive than proved to be the case for single mothers, and what effects we did discern were confined to relations with kin. In the case of married, Afro-American women there was an increase at follow-up in the number of relatives reported in the primary network, many of whom were not included at all in the network 3 years earlier (new membership).

6.6.4 White, Married Mothers

The mothers from this subgroup involved with the program reported a decrease in overall network size in comparison with the appropriate controls, which was still more apparent at the functional level. This decrease was limited to nonrelatives. It was balanced at the primary level for mothers in the program by an increase in kinfolk. Closer examination shows that these kin were primarily people present in the network 3 years earlier but not defined as especially important at that time. So whereas for black married mothers the increase in primary kin consisted of "first timers," in the case of white mothers it was made up largely of relatives already present before but now endowed with greater importance.

It is clear from these summaries that the basic attributes of mothers' networks identified earlier through analysis of baseline data (Cochran et al., 1981) have proved to be useful guides to an understanding of program effects. The single/married and black/white distinctions, the differentiation of kin from nonkin, and the particular efforts invested in understanding primary network ties have all borne fruit. The value of recognizing the independent effect exerted by mother's level of education also became apparent as the analyses progressed.

6.6.5 Program I vs. Program II

A concern for differences in educational and other background characteristics between mothers in Programs I and II led us to fold those 2 program subgroups together for many analyses, thus creating a group more equivalent in background to the control group than had been the case for either program subgroup. Some comparisons were carried out, however, that distinguished the 2 program approaches, the various results of which were mentioned at several points earlier in the chapter. While they should be interpreted with caution because of the possible confounding just referred to, it is useful, as an exercise in hypothesis generation, to summarize the patterns that emerged by program type when those findings are considered as a whole. For black parents the pattern is straightforward: all of the significant program effects found for black mothers were associated primarily with Program I. The picture for white, married women is equally unequivocal: effects seem to be related to assignment in Program II. Women in the white, single subgroup appeared to respond with network expansion at the more intimate primary level if assigned to Program I and at the more functional level if living in a Program II neighborhood.

Before investing energy in trying to explain these patterns of impact for differing family types, a reminder and a caution are in order. The reader is reminded that in all program neighborhoods both program options were offered after the first 9 months of operation. Thus the combination of either of the components was available to every program family for at least a 1-year period. The caution involves an alternative explanation: the effects could be simply a function of skills of particular program workers, and have nothing to do with the program approach initially offered each family. However, the reality of program delivery is that family and neighborhood circumstances interact with worker skills. In a high-stress, low-income, highly residentially mobile neighborhood, it requires less skill to deliver a program involving a single family (Program I) than one requiring involvement of a number of families or the whole neighborhood. With this reality in mind, and aware that housing patterns in Syracuse mirror those in most U.S. urban areas, one possible explanation for the observed patterns of program effects by family type becomes apparent. Black female heads of households, who are most likely to be poor and living in areas of high crime and low rent, were reached best by an approach (Program I) that required no neighborhood cohesion and was flexible enough to adapt to the demands of high-stress situations. White married women in our sample lived either in suburban settings or in strong ethnic urban enclaves (Irish, Italian) characterized by high levels of social cohesiveness. These neighborhoods would have been more accessible to a group-oriented approach, and perhaps less receptive to a home visitor who looked, from a distance, like a "social worker." White, single mothers rented rather than owned the housing they occupied, but had easier access to housing in more highly socially cohesive, residentially stable neighborhoods than did their black counterparts. One could argue, therefore, that their location ecologically midway between the high crime, low rent inner-city neighborhoods and those much safer, owner-occupied, suburban neighborhoods -- combined with high feelings of need occasioned by social isolation and financial stress -- made white, single mothers receptive to both approaches.

Are the changes in social organization that seem to have accompanied program participation necessarily to be construed as "good" for the adults and children they embrace? Those changes are quite different for married and single women, especially if they are white. The former reduce the number of ties with nonkin and become more intensely involved with relatives. The latter increase involvement with unrelated friends and colleagues at all levels, and somewhat reduce involvement with (dependence upon?) kinfolk. Black women, regardless of marital status, seem to distribute their social modifications more evenly between kin and nonkin, retaining or moderately increasing nonkin ties while sustaining and building upon close relationships with relatives. These patterns of different responses to the program suggest that perhaps program involvement speeds up movement toward social arrangements/organization that are dictated by the family ideologies pervading our culture. One deeply rooted ideology maintains that young families should contain 2 parents, promote good relations with both sides of the extended family, and remain as independent as possible from outside influences. White, married mothers in the program seem to modify their social relations somewhat in those directions. An ideology of more recent vintage, but perhaps shaped by a powerful set of contemporaneous forces, could be interpreted to suggest that, if unmarried, a mother should reduce the pressure of relationships with her own family of origin by building a strong, reciprocal base of support outside the family. Responses to the program by white, unmarried mothers exhibit the social behavior implied by such an orientation. Black women have traditionally expressed commitment to the maintenance of strong ties with kin, but have also been connected with nonkin through local churches and neighborhood organizations. It makes sense that the demands associated with a legacy of discrimination would require social survival strategies that included both kin and nonkin. Our data can be interpreted to suggest the presence of just such a dual strategy by black women.

Does a social-support program make a positive contribution by speeding the movement of mothers (and families) toward the patterns of informal social organization that they would otherwise realize more slowly, and perhaps less fully? In this research we defined the answer to such a question in terms of child outcomes: Are the children in such families affected by these changes, and if so, how? We address this question further in Chapter 7. At this juncture it is enough to underscore that this is the first study we know of that 1) gave network relations a prominent place in the assessment of an intervention program, and 2) demonstrated effects that can be differentiated in ways that permit the tailoring of program designs to the needs of specific types of families.

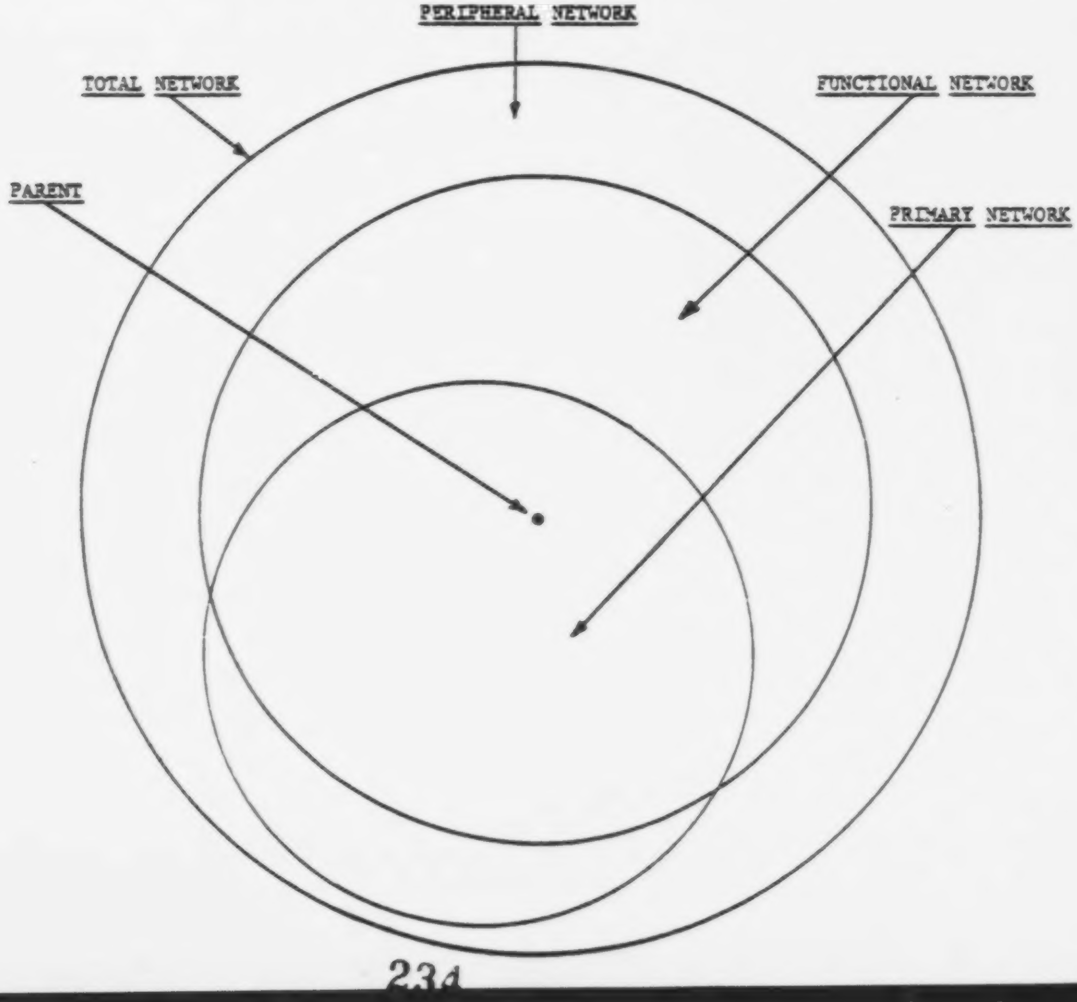
TECHNICAL NOTE 6.1

Variable Descriptions: Social Networks

A simplified topographical representation of a parent's network is shown in Figure 6.2. The figure shows a total network containing 3 zones: peripheral, functional, and primary. These distinctions involve 3 key dimensions: network size, exchange content, and intensity. Working with these 3 dimensions provides us with the following variable descriptions, each couched in operational terms. (For a clear picture of the context in which these data were generated the reader is referred to the Social Network Interview, which can be found in the appendix.)

Figure 6.2

Major Divisions of a Parent's Network


PERIPHERAL NETWORK
TOTAL NETWORK
FUNCTIONAL NETWORK
PARENT
PRIMARY NETWORK

Size of total network--A count of all the individuals listed by the respondent in response to a request for "people you are in contact with from time to time, who are important to you in one way or another."

Size of functional network--Also a count of individuals. A subset of the total network consisting of those who are identified by the parent in response to a series of questions in reference to the total list, each in the following format: "Is there anyone on this list who you turn to for [content category] ?" Seven content categories were used, and a member was included in the functional network if that individual was providing any one or more of the kinds of support included in the series of questions.

Size of peripheral network--The difference in number between the sizes of the total and functional networks. A count of those network members not identified as performing any of the specific functions listed.

Size of primary network--A count of those members of the total network who are identified by the parent as the "most important to you, for whatever reason." These individuals may be drawn from the functional or peripheral parts of the network (see Figure 6.2). Thus the intensity construct is operationalized by us as membership in this "primary" category.[4]

Number of "difficult" members--This is a count of those network members identified by the parent in response to the following question: "Looking at your entire list of contacts, could you tell me whether you sometimes have a hard time getting along with someone? I mean that you might disagree with this person a fair amount of the time?" This measure of problematic membership was included as an attempt to distinguish between more and less supportive networks (see Wellman, 1981, and the constructs in Figure 6.2).

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[4] Correlational analyses at baseline showed the primary network to be made up of individuals usually performing more than one function for the mother (multistranded), who were typically related to her by blood or marriage and had known her over a long period of time (NIE Report, 1981).

Amount of emotional support--This variable, also a count, consists of the sum of all network members flagged in response to the question, "Is there anyone on this list who you turn to for emotional support?" It is one of 2 variables used in the program evaluation that represent the construct we call "resource strength" (see also childrearing advice).

Amount of childrearing advice--As with emotional support, this is a count of those members identified in response to the questions about whom the parent turns to for support and assistance, in this case related to advice about raising the target child.

Amount of babysitting support--Again a count, this time of those on the list providing babysitting services.

Number of members you borrow things from--As above, but with borrowing as the content.

Amount of financial support--A count of those who have provided financial support in the past.

Number of members you talk with about work--As above, but with the job as the focus of discussion.

All of these variables were used extensively in our baseline analyses then reconstructed with the data gathered at follow-up. Because the interest in this report is in any differences that might be attributed to participation in the Family Matters program, it is necessary to construct measures of change using the variables described above. This was accomplished by subtracting the given amount at baseline from that generated at follow-up, thus creating difference scores that could be used to compare stability or change over time in the control group with equivalent occurrences among families participating in the program.

Three additional variables were created to document any impact of the program that went beyond changes in perceptions of the importance of network members already included in the functional or total network at baseline (as a simple increase in the primary network might represent). We wished to capture change caused by inclusion of members not present in the network at all at baseline. These 3 additional variables are:

Size of new membership: total network--a count of all those members new to the network at follow-up, without regard to the content of the relationship.

Size of new membership: functional network--a count of all those "new" members involved in at least 1 functional exchange.

Size of new membership: primary network--a count of those members in the primary network at follow-up who were not present at any level of the network 3 years earlier (at baseline).

The inclusion of "centeredness" as a construct of interest (Figure 6.2) reflects our appreciation of the differences between kin and nonkin membership, and the significance of those differences for single and married mothers (see next section). Therefore we created variables of 3 types in each of the 14 categories described above: all members, kin members, and nonkin members. Thus in any of the categories the count of kin plus the count of nonkin equals all members in that category. This key distinction between kin and nonkin is shown topographically in Figure 6.2, which also indicates that the nonkin category can be further divided by role (neighbor, workmate, friend).

TECHNICAL NOTE 6.2

Selected Baseline Network Values By Race and Marital Status (Means)*

		Black				White			
		Single		Married		Single		Married	
		Control	Program	Control	Program	Control	Program	Control	Program
Size	Total	17.0	13.9	16.8	17.5	17.0	18.0	24.7	24.0
	Kin	8.2	7.1	9.6	6.8	7.8	8.1	12.1	12.5
	Nonkin	8.8	6.8	7.2	10.7	9.2	9.9	12.6	11.5
Functional	Total	12.3	8.9	9.0	12.2	13.1	15.5	19.3	19.2
	Kin	6.2	5.2	5.8	5.4	6.0	7.1	10.1	10.0
	Nonkin	6.2	3.7	3.2	6.8	7.1	8.4	9.1	9.1
Primary	Total	5.3	4.1	5.4	4.1	4.8	6.4	6.6	6.0
	Kin	3.6	3.3	4.2	2.8	2.7	3.8	5.0	4.3
	Nonkin	1.7	0.8	1.2	1.2	2.1	2.6	1.6	1.7
Content Kin:	Advice	1.8	2.5	1.6	3.4	2.3	2.8	2.6	2.4
	Babysit	3.1	2.8	3.0	2.3	2.4	3.7	4.1	4.0
	Borrow	4.1	2.8	3.2	2.6	3.5	3.6	4.1	4.9
	Financial	1.4	1.9	3.0	1.6	3.1	2.4	2.9	2.6
	Work-Related	0	0.8	1.3	0.8	1.1	0.6	1.8	0.7
	Emotional	1.7	1.9	1.8	3.2	1.6	3.0	2.6	2.4
Nonkin:	Advice	1.6	1.2	0.5	3.4	2.1	3.4	3.0	2.9
	Babysit	2.6	1.6	1.5	2.8	2.4	3.7	3.2	3.1
	Borrow	3.2	1.1	1.0	2.0	2.8	3.1	3.7	3.8
	Financial	0.8	0.7	0.7	0.8	1.6	1.3	1.2	0.5
	Work-Related	2.0	1.0	1.2	2.2	3.5	0.7	2.7	2.2
	Emotional	2.2	1.0	1.2	2.1	2.4	3.7	2.4	2.4

*These means have not been adjusted for program-control differences in mothers' educational level.

Selected Follow-Up Network Values
By Race and Marital Status
(Means)*

		Black				White			
		Single		Married		Single		Married	
		Control	Program	Control	Program	Control	Program	Control	Program
Size									
	Total	16.5	13.8	16.3	17.5	16.1	20.5	27.2	25.1
	Kin	8.3	7.1	9.7	7.4	7.1	7.5	12.4	12.5
	Nonkin	8.2	6.7	6.6	10.1	8.9	13.0	14.8	12.6
Functional	Total	13.2	11.7	10.4	13.1	11.9	16.4	20.1	18.0
	Kin	6.2	6.1	6.5	6.2	5.4	5.5	9.6	8.9
	Nonkin	7.0	5.6	3.9	6.8	6.6	10.9	10.4	9.1
Primary	Total	9.4	7.9	8.3	7.7	7.2	11.7	10.4	10.7
	Kin	6.4	4.6	5.5	5.2	3.5	5.4	6.1	7.2
	Nonkin	3.0	3.4	2.8	2.5	3.7	6.3	4.3	3.5
Content									
Kin:	Advice	6.3	5.0	5.8	4.4	3.5	5.8	6.6	6.0
	Babysit	6.6	4.2	5.6	4.5	4.3	8.0	7.9	7.7
	Borrow	7.7	7.1	6.2	5.5	4.5	9.5	9.9	8.8
	Financial	4.3	4.6	3.7	3.4	2.4	3.1	4.1	2.8
	Work-Related	6.3	2.6	1.8	3.4	2.8	6.8	4.9	4.3
	Emotional	5.1	4.6	3.8	6.1	3.9	7.3	5.6	5.4
Nonkin:	Advice	3.1	2.7	3.6	2.6	2.1	2.3	3.1	3.1
	Babysit	3.8	3.1	4.3	2.0	2.5	3.2	4.6	4.5
	Borrow	4.3	3.4	4.2	2.9	2.4	3.8	5.0	4.6
	Financial	3.2	2.9	3.3	2.2	1.6	1.7	3.0	2.4
	Work-Related	4.0	0.3	1.0	0.7	1.0	0.8	2.2	1.1
	Emotional	2.9	2.4	2.7	3.5	1.6	2.2	2.6	2.5

*These means have not been adjusted for program-control differences in mothers' educational total.

CHAPTER 7

BEYOND DIRECT EFFECTS: EMPOWERMENT, SOCIAL SUPPORT, AND THE LINKS BETWEEN ECOLOGICAL FIELDS

Moncrieff Cochran

This chapter is devoted to an exploration of processes through which the empowerment program might have affected outcomes of interest to the investigators and the National Institute of Education. These outcomes included both school performance and domains more ecologically accessible to parents: their perceptions of themselves as parents, activities with their children, and their own personal social networks. As the description of the empowerment program in Chapter 1 indicates, each of these ecological fields was given explicit attention in program development. Program impacts related directly to each of these fields were presented and discussed in Chapters 3, 5, and 6 of this report. In this seventh chapter we continue an exploration begun in Chapter 5 of how involvement with the program might have affected relations between the ecological fields just mentioned -- the link between social networks and school outcomes, for instance, or between social networks and perceptions of self as parent. In looking at these more complex differences between program and control samples, we believe that light is being shed on indirect effects, by which are meant processes mediating the relationship between program involvement and ecological fields relatively distant from the parent. For instance, the child's performance in school can be thought of as a parental concern that is beyond the immediate control of the parent but may be affected by circumstances in more accessible domains, like perceptions of self, parent-child activities, or social supports. Relationships between pairs of these domains are examined in this chapter as a function of exposure to the empowerment program, controlling as before for preexisting differences in socioeconomic status. Where differences by program assignment are found in these links between domains, we speculate about process, the possibility that change in one domain is dependent upon change in the other, while remaining mindful of the fact (expressed in earlier chapters) that some influence other than program involvement may better explain the relationships. Put another way, this final data-based chapter "addresses the question of how program effects are achieved; whether they operate directly on the family or the child, or indirectly by altering external sources of stress and support, the family's social network, the nature of the parent-child activities, or connections between home and school" (NIE Proposal, Cochran 1980).

Movement away from the earlier interest in direct effects is reflected in a change of statistical method. Instead of concentrating on comparisons of means in analyses of covariance, with program assignment as the independent variable and one or another ecological outcome on the dependent side, we now shift our interest (as in Chapter 5) to the homogeniety by program assignment of the regressions of one ecological domain upon another. For instance, is the relationship between a change in networks over time and school performance different for families involved with the program than it is for those in the control group? The methodology for testing these differences between regressions is given in Chapter 2. The results are shown for appropriate subsamples as control-program comparisons of regression coefficients representing relationships between pairs of ecological domains.

The organization of Chapter 7 reflects its preoccupation with these relationships between pairs of ecological fields. Beginning with school outcomes and social networks, we progress through a series of paired combinations, gradually building, for each of the 4 family types (black-unmarried parent, black-married parent, white-unmarried parent, white-married parent), a composite of the relationships among the various domains included in our conceptual model (Figure 2.1, Chapter 2), all as a function of assignment to the program or the control group. As in previous chapters, the program group is a simple combination of those families assigned originally to Program I and those assigned to Program II. Each new chapter subsection begins with a brief review of the variables being compared and then proceeds to findings and discussion. A synthesis of the various findings and specific hypotheses generated by the data seen as a whole is provided at the end of the chapter.

7.1 SCHOOL OUTCOMES AND PERSONAL SOCIAL NETWORKS

Five summary variables were used as school outcomes to examine possible relationships with mothers' social networks. These variables, described in Chapter 3, are personal adjustment (V284), interpersonal relations (V283), relationship to teacher (V289), cognitive motivation (V288), and average report card score (V134). The measures of network used in the analysis were alternative ways of specifying change over time at the primary network level. One, the change in the size of the primary network, is a simple difference in primary network size between baseline and follow-up. The other, called new primary network membership, consists of people in the primary network at follow-up who were not included anywhere in the network at baseline. (See Chapter 6 for further discussion of this distinction.) In both cases we distinguish kinfolk from nonkin, bringing the total number of network variables considered to 4: change in PN (kin/nonkin) and "new" PN membership (kin/nonkin). These variables were selected for inclusion in the linking analyses because they had most effectively distinguished between the control and program groups as direct effects in our earlier analyses (Chapter 6).

7.1.1 Results

Several findings of "no difference" can serve to simplify our consideration of these data considerably. The data indicate, first, that for married families there were no significant patterns of difference between the control and program groups in the relationships between changes in reported number of primary kin or nonkin and school outcomes. The reader is reminded that a direct difference in school outcomes by program assignment was reported in Chapter 3 for certain of these married subgroups. The second lack of difference between groups can be seen in the comparisons between groups of unmarried mothers. The relationships between changes in numbers of relatives (as opposed to nonrelatives) in the primary network and school outcomes do not differ significantly for control and program families headed by unmarried mothers. Given these 2 findings of no difference, the presentation of data relating networks with school outcomes can be narrowed down to unmarried mothers' reports of changes in the number of nonrelatives included at the primary level of the network.

The findings of central interest to this aspect of our control-program comparison are shown in Tables 7.1a and b. Table 7.1a provides data related to change in primary nonkin, and Table 7.1b to primary nonkin included for the first time at follow-up ("new"). Down the left side of the tables are listed the 5 school outcome variables, each given separately for black and white parents. Reading across each table from left to right, the first set of data consists of the estimated coefficients associated with the appropriate subgroup regressions of school outcome variables on the network variable, controlling for mother's educational level. For instance, in Table 7.1a the regression of the black children's personal adjustment scores on their mothers' increase in number of primary nonkin was -2.16 for the control group and 1.24 for the program group. The probability associated with each individual regression is shown in parentheses. The second set of data in the tables portrays the results of a test of the equality of the program-control regressions. Included from the homogeniety of regressions test are the F statistic and its associated probability.

Looking at the findings in Table 7.1a, it is the positive association between increase in primary nonkin network membership and more positive school outcome scores that distinguishes program from control families. This finding is limited largely to black families. For control families in that subgroup the relationship is reversed: larger increases in nonkin primary membership are associated with lower school outcome scores. It is interesting to observe that the control-program differences are most pronounced for teachers' reports of personal adjustment and social relations. Differences along the more cognitively oriented dimensions, while still significant, are of lesser magnitude.

In Table 7.1b the network-support dimension is more narrowly defined. Instead of including any increase between baseline and follow-up in the nonrelatives portion of the

Table 7.1a

Change in Primary Nonkin and School Outcomes
(One-Parent Families)

		Regression Coefficients (Prob.)		Test of Equality of Regressions	
		Control	Program	F	Prob.
Personal Adjustment:	Black	-2.16 (.25)	1.24 (.10)	2.84	.09
	White	-1.27 (.11)	-0.12 (.64)	1.88	.17
Interpersonal Relations:	Black	-2.44 (.08)	1.29 (.02)	6.25	.01
	White	-0.79 (.18)	-0.13 (.49)	1.13	.29
Relations with Teacher:	Black	-4.33 (.02)	1.37 (.06)	8.37	.00
	White	-0.99 (.20)	-0.01 (.96)	1.42	.23
Cognitive Motivation:	Black	-1.91 (.17)	0.86 (.12)	3.51	.06
	White	-0.93 (.11)	-0.14 (.48)	1.64	.20
Average Report Card:	Black	-1.06 (.47)	0.57 (.32)	1.08	.30
	White	-0.07 (.91)	0.19 (.34)	0.17	.68

Table 7.1b

New Primary Nonkin and School Outcomes
(One-Parent Families)

		Regression Coefficients (Prob.)		Test of Equality of Regressions	
		Control	Program	F	Prob.
Personal Adjustment:	Black	-2.62 (.19)	1.79 (.08)	3.94	.05
	White	-2.49 (.05)	-0.35 (.36)	2.61	.11
Interpersonal Relations:	Black	-2.52 (.08)	1.88 (.01)	7.29	.01
	White	-1.97 (.04)	-0.23 (.42)	3.21	.08
Relations with Teacher:	Black	-4.33 (.03)	2.11 (.03)	8.70	.00
	White	-2.33 (.06)	-0.08 (.83)	2.99	.09
Cognitive Motivation:	Black	-1.45 (.32)	1.23 (.10)	2.75	.10
	White	-1.37 (.14)	-0.41 (.14)	0.98	.32
Average Report Card:	Black	-0.04 (.98)	0.56 (.46)	0.12	.73
	White	-1.19 (.23)	0.22 (.46)	1.89	.17

primary network, we limit ourselves to those reported as primary who were nowhere to be found in the network 3 years earlier. Again, the most dramatic differences are between the negative regressions of the control families and the positive regressions for the program families in the black, unmarried subgroup, and again the differences are stronger for the personal and social than for the cognitive variables. For black families, these differences are not quite as strong in relation to "new" primary nonkin as they were to primary nonkin overall. However, white unmarried mothers fare better when the emphasis is on these new acquaintenceships, again especially vis-a-vis personal and social outcomes.

A close comparison of the control-program differences for the black families with those of the white families reveals an interesting difference. Whereas the contrast for black families is between negative regressions in the control group and positive ones in the program group, for whites negative control group regressions simply become considerably less negative (not positive) in the program instance. It is as if involvement in the program turned negative into positive potential for black families headed by an unmarried woman, while for whites program involvement served a more preventive function, reducing the probability of negative contributions by nonrelatives. Or perhaps these women actively engaged in reducing relationships deemed as of negative value for the child, and so increased their own positive power and that of others in the network. Better understanding of how these key nonrelatives might have operated to affect teachers' perceptions of the children in these families awaits a more detailed, qualitative examination of their personal and exchange characteristics.

7.1.2 Discussion

The evidence provided by these data is clear cut: program families headed by an unmarried parent show a positive link between increases in nonkin at the primary network level and school outcomes that is not found for their control counterparts, nor is such a link evident for any of the married subgroups. Combining these findings with those presented in Chapters 3 and 6 produces the schematic picture shown in Figure 7.1. The figures in this chapter show the domains in an orientation that corresponds to the conceptual schema (Figure 2.1). Thus, the empirical relations can be compared to those hypothesized. The composites shown in Figure 7.1 strongly suggest that program involvement had a direct and positive effect upon school outcomes for children in families containing 2 parents, and that this effect was indirect for children in families headed by a single mother, mediated by or contingent upon increases in the number of nonrelatives included at the primary network level. Several further qualifications are needed to complete the story. For families headed by an unmarried parent the effects were stronger with black than with white children. And the pertinent school outcomes varied for children with married and unmarried parents--primarily report card scores for the former and mostly learning readiness (personal adjustment, relationship with teacher) for the latter.

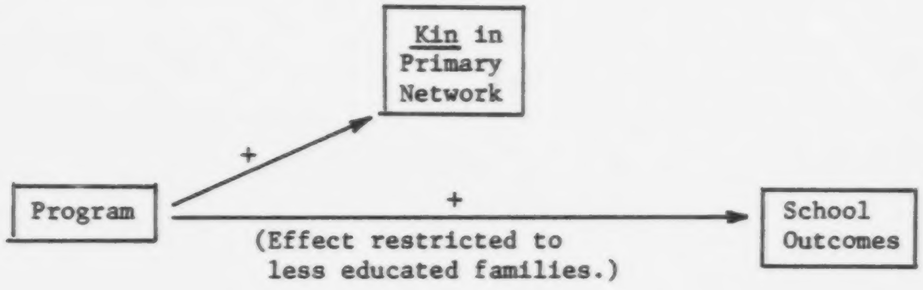
What is it about the married-couple situation that translates program involvement directly into school performance, and could it involve functions that might be performed in single-parent families by key nonkin? The parental commodities most useful to first graders beyond interest and commitment are probably time and energy. In general, a couple can provide more time and energy in organizing and monitoring the child's first-grade experience than can the single parent, who must simultaneously provide for the material needs of the family. It is possible that a few key friends could substitute somewhat for a spouse in this regard. The data presented here suggest just such a hypothesis, which can be tested by a more qualitative analysis of our data.

The link between primary nonkin and school outcomes is stronger for black than for white families headed by an unmarried mother. What might explain this difference? Subgroup sample sizes are similar enough to make unlikely an artifactual result. We are inclined toward a line of thinking that carries over from Chapter 6 and is reinforced by a clue emerging from the data just presented here. Data presented in the previous chapter indicated that black unmarried parents had retained closer ties with their kinfolk than had

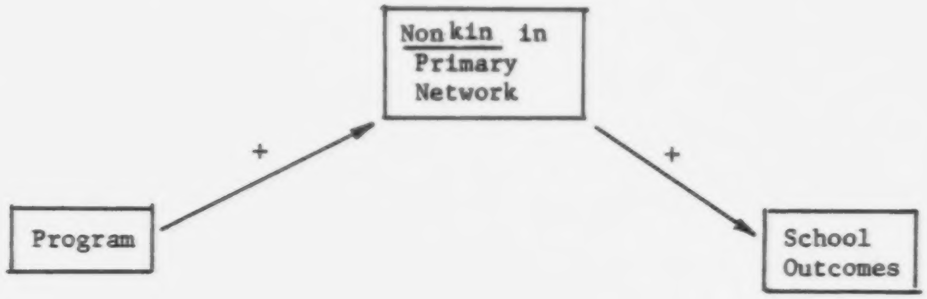
FIGURE 7.1

NETWORKS AND SCHOOL OUTCOMES

A. Families Containing a Married Couple.


Kin in Primary Network
+
Program
+
School Outcomes
(Effect restricted to less educated families.)

B. Families Headed by Unmarried Mother.


Non kin in Primary Network
+
+
Program
School Outcomes

(The program also increased the Primary Network *kin* in the black, single-parent families.)

their white counterparts. This more cohesive maintenance of the extended family may carry over to unrelated friends, with these friends being thought of, and thinking of themselves, as more "like kin" in the Afro-American than in the Caucasian context. This tentative hypothesis is supported by what our data tell us about "new" versus "all" primary nonkin. The reader will remember that in the white unmarried case it was primary nonkin new to the network whose presence was linked to school outcomes. With black unmarried mothers all primary nonkin made a difference, including those who had been reported 3 years earlier as in the network but not at the primary ["most important"] level. So there is evidence that some of the nonkin playing a key role for black unmarried mothers and their children had been a part of the family for some time, and therefore may well have developed a closer relationship with the child and a greater appreciation of what might free the mother to perform her parenting role more effectively. Thus the program seems to have stimulated white unmarried mothers primarily to build a circle of new friends, while for black mothers the response is also to become more involved with old ones.

Face to face "reinforcement of schooling" time may also contribute to the reason children of married couples are linked more to cognitive outcomes while those of unmarried mothers perform better on personal adjustment, interpersonal relations, and relationship to teacher. The stresses relieved by network support may translate into a more secure and consistent mother-child relationship, and therefore a more confident and socially competent child (Crockenberg, 1981; Homel and Burns, 1981), without involving much initial increase in actual involvement with the cognitive tasks of first grade. Thus perhaps we are seeing early evidence of what House (1980) calls the "convoy of social support," which may prepare the child developmentally for school learning without providing the learning itself. If true, this suggests that cognitive advantage may accrue to such children only as the school has time to take advantage of the opportunity provided by the supportive convoy. The imposition of this time dimension has serious implications for the maintenance function of family support programs like Family Matters.

7.2 SOCIAL NETWORKS AND PARENT-CHILD ACTIVITIES

The joint activities engaged in by mother and child fell into a number of different subject-matter categories, including chores, school-related, creative/recreational, social competence, cultural competence, conversation, sports, play, and music and dance. (See Chapter 5 for more discussion of these variables). We collapsed these categories further in various combinations for summary purposes. Special attention has been paid, for these analyses, to 3 summary variables: the first combines creative, recreational, and the 2 social competence categories (companionship); the second is composed of 4 verbal categories (talk); and the third is a combination of all 13 joint activity categories (total). The pattern of findings reported below was consistent across all 3 of these summary variables. For ease of presentation, therefore, we include only the first of the variables, companionship activities.

The set of 4 social network variables used here is the same as that used in the previous section of this chapter. It consists of change (increase) in primary kin and nonkin, and the addition of "new" kin and nonkin to the primary network.

7.2.1 Results

Findings relating primary network changes to joint mother-child activities as a function of program assignment are presented in Table 7.2. The primary network variables are listed down the left margin, and are further subdivided by race and marital status. The types of data are organized as in Tables 7.1a and 7.1b, with estimated coefficients for individual regressions and the probabilities for the test of their significance first, and then the F statistic and associated probability for the comparison of the control and program regressions generated by that particular sample subclass. The reader is reminded that these data pertain specifically to the outcome variable called companionship activities, which shows patterns that accurately reflect those in the broader set of activity variables.

Table 7.2a

Change in Primary Network and Joint Parent-Child Companionship Activities

		Regression Coefficients (Prob.)		Test of Equality of Regressions	
		Control	Program	F	Prob.
Primary Kin:	Black Single	-0.30 (.41)	1.60 (.03)	5.34	.02
	Black Married	-1.17 (.06)	0.58 (.26)	4.84	.03
	White Single	0.96 (.17)	0.56 (.07)	0.28	.60
	White Married	-0.24 (.25)	-0.06 (.59)	0.57	.45
Primary Nonkin:	Black Single	0.43 (.62)	0.01 (.98)	0.21	.65
	Black Married	-1.05 (.20)	0.82 (.35)	2.41	.12
	White Single	-0.10 (.81)	0.11 (.49)	0.22	.64
	White Married	-0.19 (.43)	-0.14 (.53)	0.02	.89

Table 7.2b

New Primary Membership and Joint Parent-Child Companionship Activities

		Regression Coefficients (Prob.)		Test of Equality of Regressions	
		Control	Program	F	Prob.
New Primary Kin:	Black Single	-0.07 (.97)	-0.36 (.75)	0.02	.89
	Black Married	-11.09 (.09)	1.11 (.15)	3.39	.07
	White Single	3.09 (.04)	0.01 (.99)	2.72	.10
	White Married	-0.94 (.36)	-0.07 (.89)	0.57	.45
New Primary Nonkin:	Black Single	0.71 (.58)	-0.15 (.74)	0.41	.52
	Black Married	-6.48 (.00)	0.89 (.45)	10.86	.00
	White Single	-0.58 (.48)	0.10 (.70)	0.62	.43
	White Married	-0.19 (.59)	0.08 (.85)	0.25	.62

The first and most obvious finding contained in Tables 7.2a and 7.2b is that involvement with the Family Matters program seems to have produced a link between increases in primary network membership and parent-child activities for black families and not for their white counterparts. This finding is strongest for black couples, where it extends to both kin and nonkin and to both new and continuing membership. For black families headed by an unmarried mother, the effect is limited to relatives who have been heavily involved with the families over a relatively long period of time (Table 7.2a).

Looking more closely at the regression coefficients reveals that for the black married subgroup the comparison is quite consistently between a control sample regression with a very negative slope and a program sample regression only modestly positive. The impression given by these data is that involvement with the program prevents a negative relationship between increases in the primary network and parent-child activities, rather than producing a positive one.

Comparison of the findings in Table 7.2a with those in Table 7.2b suggests that while the kin who seem to affect joint activity levels have been involved with the networks for at least 3 years (Table 7.2a), a substantial proportion of the key nonrelatives have been brought into the network more recently (Table 7.2b).

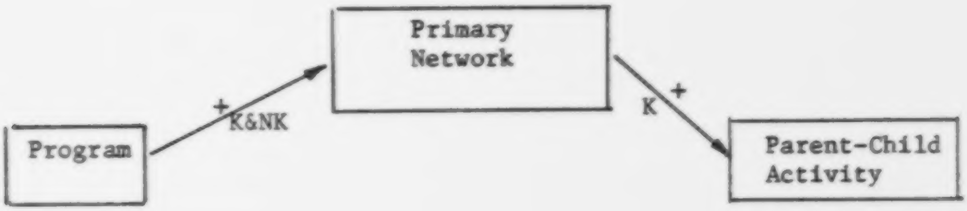
7.2.2 Discussion

Why is it that increases in primary network membership should be related to parent-child activities for black but not for white families? The question may be answered differently for the involvement of kin and nonkin. In Chapter 6 we documented the fact that black mothers were more involved in general with their kinfolk than were white mothers. This was especially true for unmarried black women, but carried over to the married case as well. Now data are introduced that link these kin with parent-child activities, generating an increase for the children of unmarried black mothers and preventing a decrease in the married instance. These findings are shown in Figure 7.2. What are the processes at work involving these close kin that might lead to more activities? Is the answer to be found simply in a myriad of assisting acts that translate for the parent into more time and energy for the child? Or does the special interest of these relatives in the child spur the parent on to greater involvement? Or is there another explanation? As yet, we do not know.

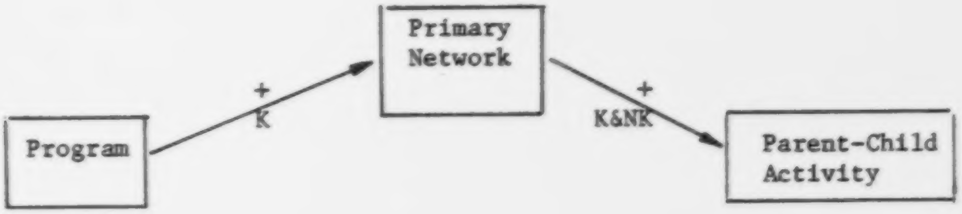
FIGURE 7.2

NETWORKS AND PARENT-CHILD ACTIVITIES

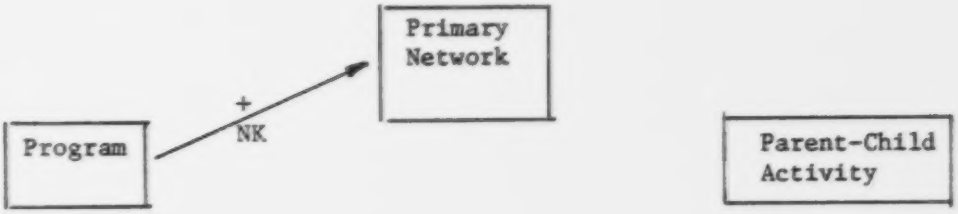
A. Black, Single-Parent Families.


Primary Network
+
K&NK
K
+
Program
Parent-Child Activity

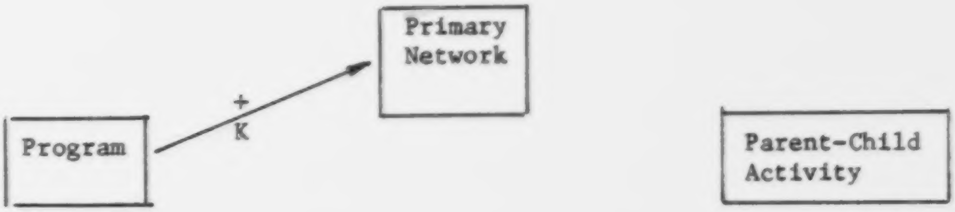
B. Black, Two-Parent Families.


Primary Network
+
K
+
K&NK
Program
Parent-Child Activity

C. White, Single-Parent Families.


Primary Network
+
NK
Program
Parent-Child Activity

D. White, Two-Parent Families.


Primary Network
+
K
Program
Parent-Child Activity

Key to abbreviations:
K = Network Kin. NK = Network Nonkin. K&NK = both Kin and Nonkin.

More difficult to explain even than the effects of kin on parent-child activities are those of nonkin. Program involvement was related to an increase in primary nonkin as well as kin for unmarried black mothers, but only kin were linked to parent-child activities for these same mothers (Figure 7.2). In the case of married black mothers, nonkin (along with kin) were linked with parent-child activities despite the fact that program involvement was not related directly to an increase in the number of nonkin in the primary network (Chapter 6). The picture is a disjointed one. Given its inconsistent nature, one cannot help wondering about the activity variables themselves. Mothers were asked to indicate on a 5-point scale how often they engaged in a range of different activities with their child. These questions came at a time when the child had recently entered full-time schooling, in some cases for the first time. Perhaps the most dominant feature of the activity pattern with their children was, then, a general reduction caused by the child's school attendance. Was the instrument subtle enough to pick up smaller differences in activity level, caused perhaps by program participation, within the larger general pattern of reduction? Our findings are too inconsistant to answer in the affirmative with much conviction.

7.3 SOCIAL NETWORKS AND PERCEPTIONS OF SELF AS PARENT

Our perception of parenting measure is a summary variable combining the scores of 25 items specific to various parenting activities. As mentioned earlier (Chapter 5), these activity domains consisted of general knowledge of and skill at parenting, teaching moral behavior, establishing affectionate relations, child-directed activities, child-centered activities, organizing abilities, own temperament, disciplining skills, enjoying the child, and enjoying being a parent. For example, the question regarding general knowledge read, "exposing my children to activities like music and art," and the parent responded by choosing from 7 points on a scale with end points labeled "very well" and "not very well." The scores on these individual items were combined to produce the summary score.

The personal network variables are those used in the previous sections of this chapter, which are located at the primary level of the network, distinguish kin from nonkin, and measure both overall change during the 3 years of the program and the addition of primary network members new to the entire network since baseline data collection.

7.3.1 Results

Tables 7.3a and 7.3b provide the reader with an overall picture of the relationships between change in primary networks and perceptions of oneself as a parent, as a function of program assignment and controlling for mother's educational level. The 4 network variables are identified in the column at the far left in the tables, distinguished separately by the 4 race/marital status combinations. The table format is as described for Table 7.2.

It is immediately obvious when examining the data contained in the table that no general effect of network change on self as parent was stimulated by involvement with the Family Matters program. Closer scrutiny reveals, however, that such a link does seem to emerge for white, unmarried parents. The relationships can be seen both for change in

Table 7.3a

Change in Primary Network and Perception of Self as Parent

		Regression Coefficients (Prob.)		Test of Equality of Regressions	
		Control	Program	F	Prob.
Primary Kin:	Black Single	0.60 (.57)	1.00 (.64)	0.03	.87
	Black Married	-0.71 (.69)	-1.37 (.36)	0.08	.78
	White Single	-3.23 (.12)	1.22 (.19)	3.95	.05
	White Married	0.26 (.67)	0.63 (.06)	0.30	.58
Primary Nonkin:	Black Single	-0.46 (.85)	-0.50 (.59)	0.00	.99
	Black Married	-1.22 (.61)	-1.09 (.67)	0.00	.97
	White Single	0.65 (.59)	0.16 (.74)	0.15	.70
	White Married	0.62 (.36)	0.26 (.69)	0.14	.71

Table 7.3b

New Primary Membership and Perception of Self as Parent

		Regression Coefficients (Prob.)		Test of Equality of Regressions	
		Control	Program	F	Prob.
New Primary Kin:	Black Single	8.12 (.14)	0.28 (.93)	1.48	.22
	Black Married	-11.94 (.53)	-1.68 (.45)	0.28	.59
	White Single	-2.16 (.62)	2.09 (.51)	0.61	.43
	White Married	4.36 (.15)	-0.25 (.87)	1.88	.17
New Primary Nonkin:	Black Single	3.01 (.42)	-1.82 (.17)	1.50	.22
	Black Married	-2.85 (.61)	-4.61 (.17)	0.07	.79
	White Single	-4.22 (.08)	0.20 (.78)	3.18	.08
	White Married	-0.03 (.98)	0.89 (.45)	0.34	.56

primary kin (Table 7.3a) and new primary nonkin (Table 7.3b). In each instance a strong negative regression coefficient for the control subsample (larger network associated with lower self perception), is replaced in the program group by a moderately positive one. It appears, then, that closer relations with certain relatives and the introduction of 1 or more key nonkin are accomplished with no loss in parental self perception by those unmarried, white mothers involved with the program, while for those in the control group such social changes are accompanied by a lowered parental perception of self.

The regression coefficients estimated for the same 2 network variables (change in primary kin and new primary nonkin) in the black subsamples are also interesting. There we see signs of a more negative relationship in the program than in the control groups; a decline in self-regard as a parent is accompanied by an increase in primary network membership. These control-program differences did not, however, reach statistical significance.

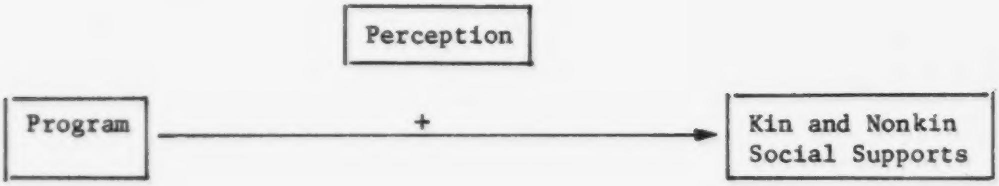
7.3.2 Discussion

The results presented here need to be understood in the context of what has already been learned about the direct effects of program involvement on perception of parenting (Chapter 5). Those findings are shown in Figure 7.3 as lines connecting the program

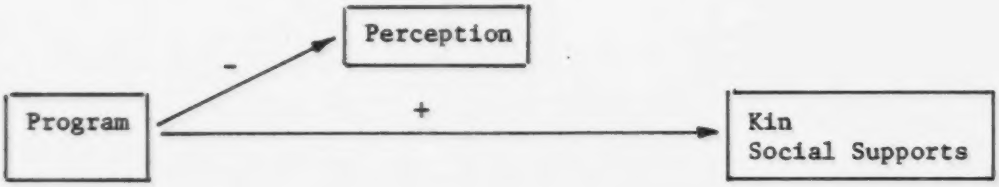
FIGURE 7.3

NETWORKS AND PARENTAL PERCEPTIONS

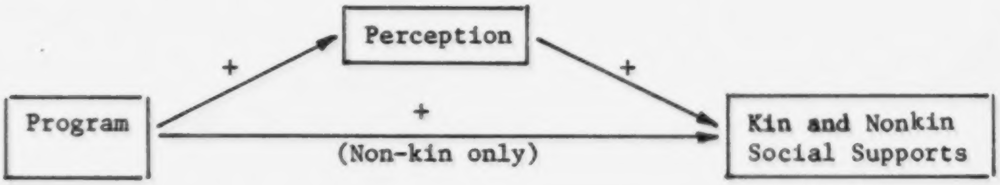
A. Black, Single-Parent Families.


Perception
Program
+
Kin and Nonkin
Social Supports

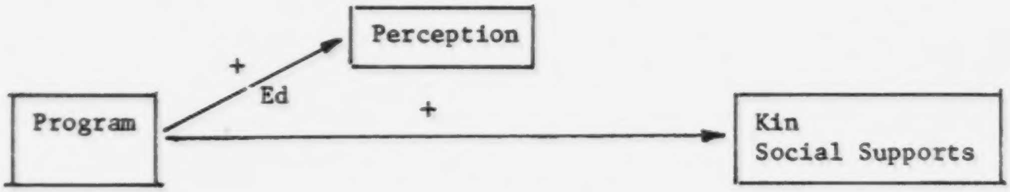
B. Black, Two-Parent Families.


Perception
-
Program
+
Kin
Social Supports

C. White, Single-Parent Families.


Perception
+
+
Program
+
(Non-kin only)
Kin and Nonkin
Social Supports

D. White, Two-Parent Families.


Perception
+
Ed
Program
+
Kin
Social Supports

Note: Ed = Effect was observed primarily for mothers with education beyond high school.

with self as parent. Also shown in the figure are any previously reported relationships directly between program and primary networks. Results presented in Chapter 5 indicated that, for unmarried white mothers, program involvement was strongly associated with higher perceptions of parenting (control mean = 131; program mean = 148). There was also a positive relationship between program assignment and increase in the nonkin portion of the network for this subgroup. The direct, positive links between program involvement and these 2 domains would suggest that the domains themselves are positively related through nonkin, and this has proved to be the case.

While we know a good deal about how esteem-building activities were brought to bear directly upon mothers by home visitors, what is less clear is how indirect network effects might be operating. Does more positive sense of self as parent stimulate closer ties with friends? Or is it the relationships with these friends that raise the confidence level? Or do the 2 domains build sequentially upon one another?

The presence of a positive link between number of primary kinfolk and self perception for unmarried, white mothers in the program is interesting because of the absence of its analogue directly between program assignment and networks (see Figure 7.3). In the earlier chapter on network change, we remarked upon indications that unmarried whites differed from their black counterparts in the greater distance between themselves and their relatives. Assuming that this distance is caused by some ambivalence toward these mothers by their own family members, it becomes reasonable to suggest that considerable gains in self-confidence would be needed before the young mother might attempt to reconcile the disagreements in favor of a closer relationship. This positive change in self-regard is evident in the data, and so it becomes plausible to suggest as a hypothesis that these more positive feelings about self as parent led to closer relations with relatives, rather than the reverse.

The only other aspect of these findings requiring discussion is the proportion (11 of 16) of negative regressions of network change on perception of self as parent generated by the data from black mothers. Regardless of program assignment, increase in the size of these mothers' primary networks was often associated with lower perception scores. However, this must be seen in the context of the fact that the mean perception scores of the 2 black subgroups were considerably higher than the mean of the sample as a whole. Therefore, those black mothers with the lower scores within their own subgroups had scores which were in the middle rather than at the bottom of the overall distribution. If perceptions of self as parent are unusually high, then involvement with a parent-child program like Family Matters could stimulate some reassessment, and cause some lowering of perception relative to personal expectation. We argued in Chapter 5 that this shift, if not too precipitous, should be viewed as positive. The accompanying increase in size of primary network is also plausible. It would be explained in either of 2 ways. Perhaps less confidence with childrearing prompts a reaching out to others for assistance. Or maybe greater involvement with others over time brings exchanges involving the child and children in general that stimulate a more critical look at one's own childrearing skills and attitudes.

7.4 PARENTAL SELF-PERCEPTIONS AND HOME SCHOOL COMMUNICATIONS

We know, from our own experience with Syracuse parents and from the writings of others (Lightfoot, 1978), that some parents are easily intimidated by schools and school personnel. Such feelings of insecurity and lack of confidence might be counteracted by participation in a program that promoted confidence in self as parent. We examined such a possibility by comparing the program group regressions of self as parent on home-school contacts with those of the control group, again controlling for mothers' levels of education. The home-school contact variables are the same as those presented in Chapter 4: conferences, notes, and telephone calls as initiated by parents and teachers. The analyses were conducted with the subsample that had also proved most illuminating in Chapter 4 -- those 80 families whose children were considered by teachers and parents to be in academic difficulty.

7.4.1 Results

Data pertaining to the possible link between parental perceptions of self and home-school contacts are shown in Table 7.4. The table provides estimated coefficients for each subclass regression, and the probabilities associated with the test of equality between the control and program regressions. The 12 home-school contact variables make up the left-hand column of the table.

Two major findings are evident in Table 7.4, and they are related to the 2 sample subgroups also identified in Chapter 4 as most involved with home-school communications. While the relationship between higher perception of self as parent and more home-school communications (notes and calls) is somewhat positive for unmarried white mothers in the program, it is quite negative for their counterparts in the control group. This relationship is reversed for married black mothers: decreasing perceptions of self as parent are associated with increasing amounts of telephone and written contact with the school. Again the control subsample showed the opposite pattern. Few such differences between program and control regressions were found in the other 2 subgroups of families.

Table 7.4

Mother's Perception of Self as Parent
and Home-School Communications*

	Black						White					
	Single			Married			Single			Married		
	Program	Control		Program	Control		Program	Control		Program	Control	
Conferences												
At Parent Request (P)												
At Parent Request (T)	.025 (.07)	.000 (.98)	.16									
At Teacher Request (P)												
At Teacher Request (T)												
Telephone Calls												
Parent Called (P)	.07 (.01)	.01 (.49)	.10	-.14 (.04)	.20 (.04)	.01	.07 (.02)	-.04 (.23)	.02			
Teacher Received Call (T)				-.15 (.08)	.05 (.46)	.02	.03 (.14)	-.05 (.05)	.01			
Parent Received Call (P)												
Teacher Called (T)				-.08 (.27)	.12 (.29)	.13	.04 (.22)	-.06 (.10)	.04			
Notes												
Parent Sent Note (P)				-.11 (.19)	.20 (.10)	.04						
Teacher Received Note (T)				-.14 (.06)	.07 (.50)	.11	.03 (.35)	-.06 (.09)	.06	-.01 (.50)	.05 (.18)	.14
Parent Received Note (P)							.02 (.53)	-.08 (.05)	.06			
Teacher Sent Note (T)				-.08 (.33)	.11 (.36)	.19	.00 (.34)	-.08 (.05)	.13			

*Data presented for those comparisons in which the test for homogeneity of regressions (program vs. control) showed a probability ≤ .20. Table entries are estimated regressio coefficients with probabilities in parentheses.

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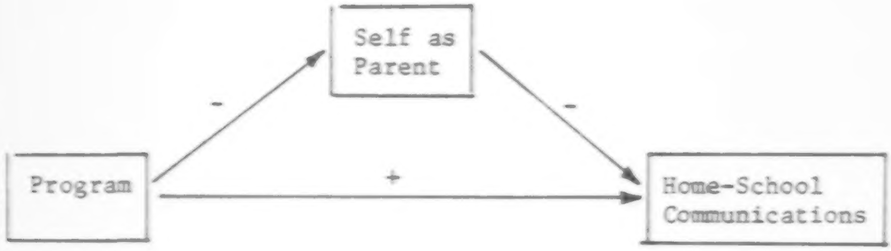
7.4.2 Discussion

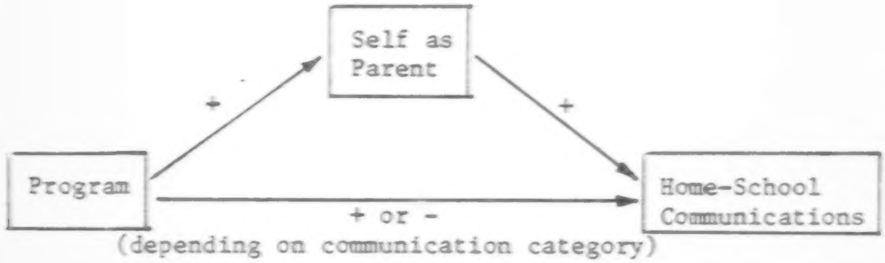
These 2 findings can be combined with the data summarized earlier in this and other chapters to produce the composites shown in Figure 7.4. It is comforting to see that the resulting pictures have coherence. The tendency for program involvement to somewhat reduce black married mothers' high perceptions of themselves as parents carries over to school contacts, where the lowered perceptions are accompanied by increased contact. These findings are also perfectly congruent with the positive direct effect of the program on the school contacts of this subgroup shown in the figure and reported earlier in Chapter 4. The fact that somewhat lowered perceptions of self as parent are associated with action directed at the school on behalf of the child reinforces the tentative assertion

FIGURE 7.4
SELF PERCEPTIONS AND HOME-SCHOOL COMMUNICATIONS

Married Black Mothers.


Self as Parent
-
-
Program
+
Home-School Communications

Unmarried White Mothers.


Self as Parent
+
+
Program
+ or -
(depending on communication category)
Home-School Communications

made in Chapter 5, that when one's self-perception is already quite positive a reappraisal and some readjustment can have positive consequences for the child.

The picture emerging for the white, unmarried mother is also consistent. Program involvement was directly and strongly associated with an upward shift in perception of self as parent, as contrasted with a control subsample that had a mean perception score well below that of any other subgroup in the study (program or control). Associated with the upward shift in self-perception was more contact with the school. These home-school communication effects, which we can now hypothesize as indirectly associated with program involvement, showed up less consistently as directly associated with participation in the program. The earlier examination of home-school contacts as a simple function of program assignment found higher levels of telephone communication by program mothers combined with lower levels of participation in parent-teacher conferences.

7.5 SUMMARY AND DISCUSSION

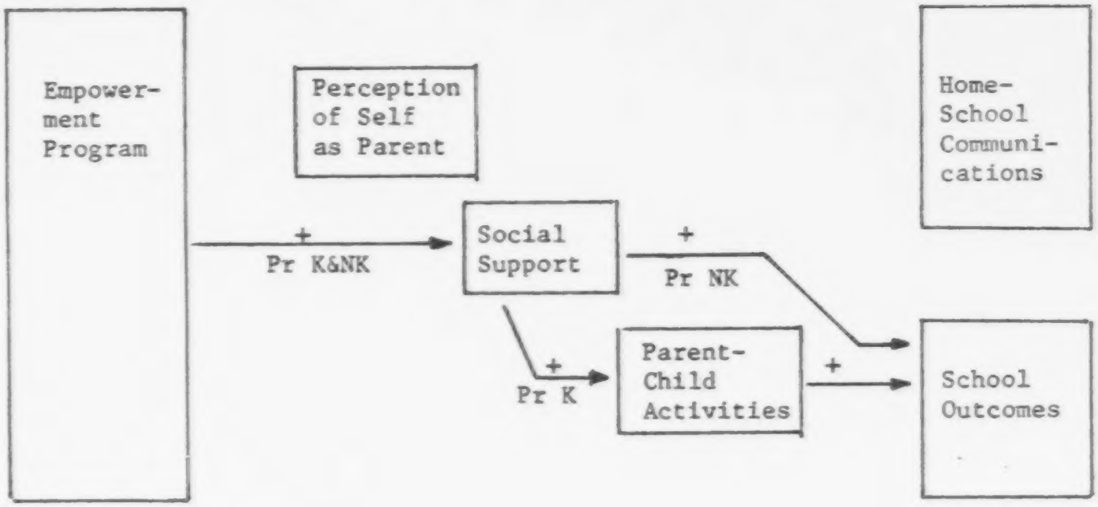
The examination of possible links between the components in our ecological model is now complete. While the analytic procedures employed do not permit definitive statements about the actual paths along which the empowerment process traveled in having its influence upon the families in the 4 different subgroups, it is appropriate to combine the various identified relationships into a single diagram for each of the groups, and give some consideration to the meaning of the emergent patterns. Composites drawn from the findings reported in this chapter and in Chapters 5 and 6 are shown in Figure 7.5.

The pictures provided for the single-parent subgroups suggest that the impacts of the empowerment program upon children's school performance are heavily mediated by changes occuring within and around their parents. In the case of the black one-parent

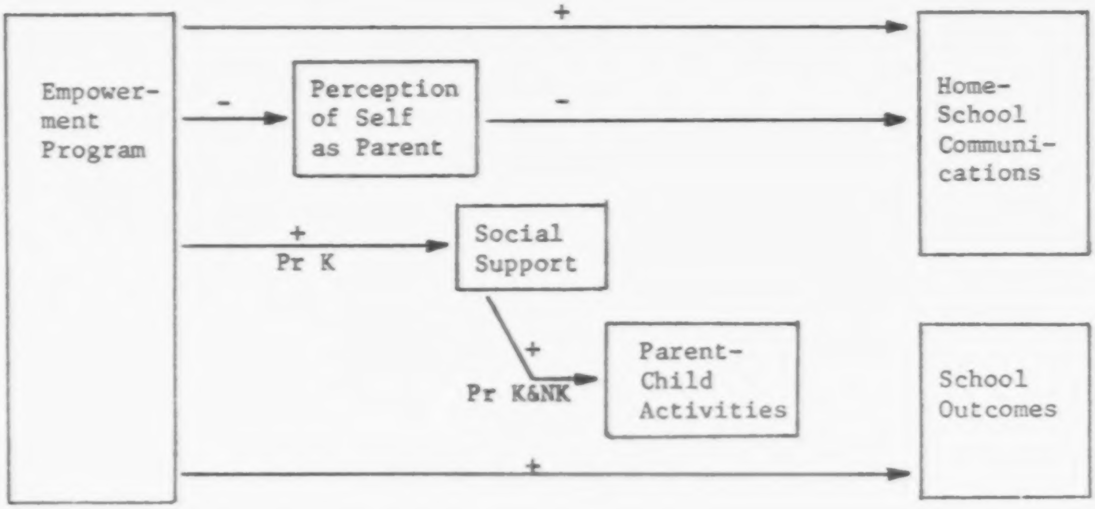
FIGURE 7.5

PROGRAM IMPACTS: LINKS BETWEEN MODEL COMPONENTS

Black, Single Mothers.


Empowerment Program
Perception of Self as Parent
Home-School Communications
+
Pr K&NK
Social Support
+
Pr NK
+
Pr K
Parent-Child Activities
+
School Outcomes

Black, Married Mothers.


+
Empowerment Program
-
Perception of Self as Parent
-
Home-School Communications
+
Pr K
Social Support
+
Pr K&NK
Parent-Child Activities
School Outcomes
+

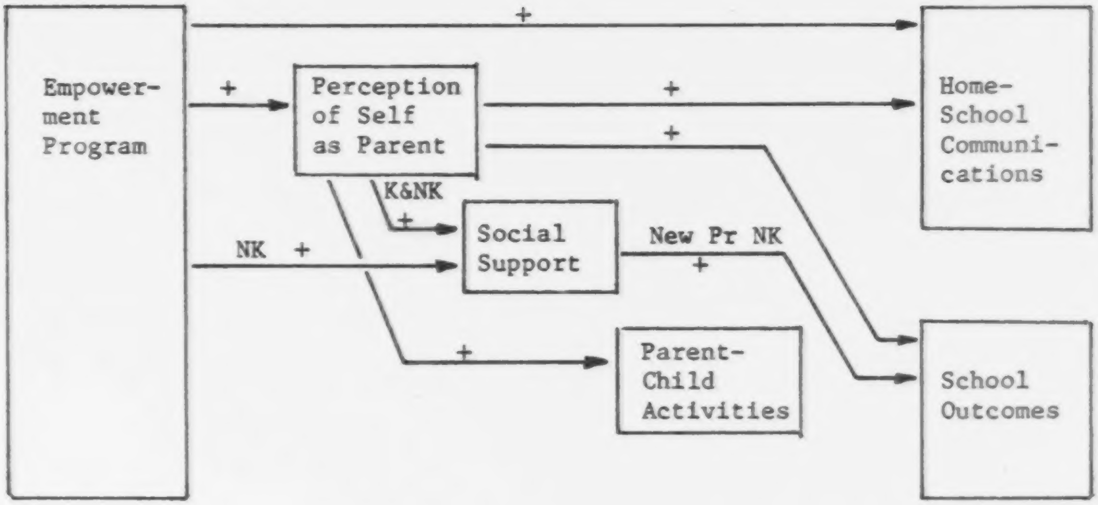
Key to abbreviations:

Pr K - Primary network Kin
Pr NK - Primary network Nonkin
Pr K&NK - Primary network Kin and Nonkin

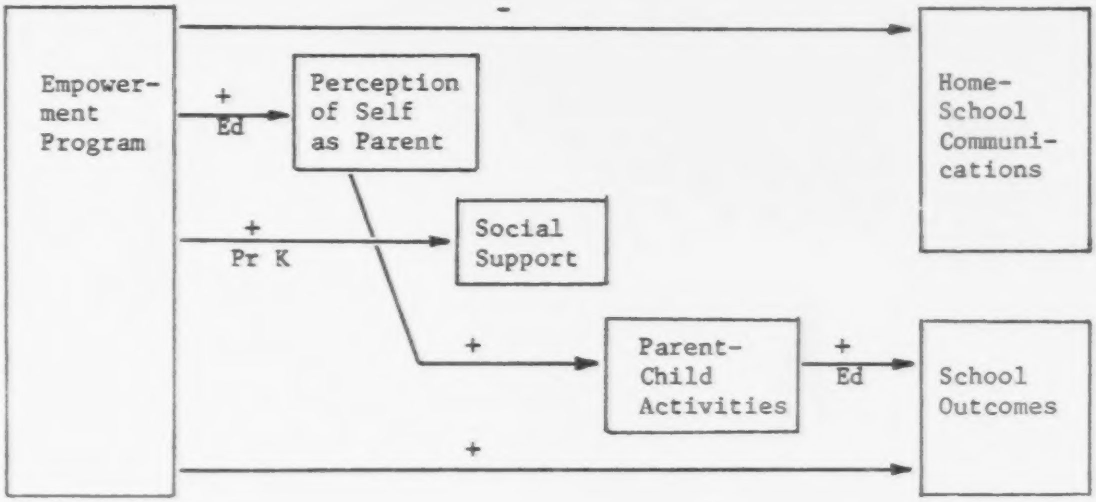
FIGURE 7.5

(continued)

White, Single Mothers.


Empowerment Program
Perception of Self as Parent
Social Support
Parent-Child Activities
Home-School Communications
School Outcomes
+
+
+
+
K&NK
+
NK +
New Pr NK
+
+

White, Two-Parent Mothers.


Empowerment Program
Perception of Self as Parent
Social Support
Parent-Child Activities
Home-School Communications
School Outcomes
-
+
Ed
+
Pr K
+
+
Ed
+

Key to abbreviations:

NK - Network Nonkin
K&NK - Kin and Nonkin
Pr K - Primary network Kin
New Pr NK - New Primary network Nonkin
Ed - Effect was observed only for mothers with education beyond high school.

family, increases in the number of relatives included in the mother's primary network were associated with reports of more joint activity with the child. Joint activity involving household chores was linked in turn with higher performance in school. And expansion of nonkin membership in the primary networks of those mothers was linked with their children's school outcomes, especially when those outcomes involved school readiness (personal adjustment, interpersonal relations, relations with the teacher). White single mothers' perceptions of themselves as parents appeared to be a key determinant in whether positive performance was seen in the more distant reaches of their ecological fields. Higher parental perceptions are associated, for these mothers, with expansion of their primary networks, the activities they reported engaging in with the child, their level of communications with the child's teacher, and the teacher's report of the child's progress in first grade. There is evidence that the nonkin sector of the primary network may also play a positive role in its own right, with increase in nonkin linked to higher school outcomes, again primarily in the area of school readiness. Certainly these patterns are consistent enough to permit the generation of specific hypotheses about the processes through which a parental empowerment program operates to sustain, and to some extent enhance, the performance of 6-year-olds in school. Those hypotheses will be included in the concluding chapter of the report.

The pictures in Figure 7.5 are more ambiguous for married mothers and their children. A somewhat lower self-perception as parent by black married mothers in the program seemed also to be tied to greater communication with the teacher in those instances where the child is perceived as having difficulty in school. There was also a direct link between program involvement and increased home-school communication. For these same mothers, increased involvement with kinfolk was related to greater amounts of mother-child activity. However, none of these hypothetical chains leads to better performance of the child in school. School performance was tied directly to program involvement, without any intermediate links to other ecological fields.

One set of possible mediating links does emerge for white married mothers, if those mothers have schooling beyond high school. The proposed sequence involves increased perception of self as parent, more mother-child activities, and better performance by the child in school. Again, the reader is reminded that in Chapter 3 we reported a direct link between program involvement and school performance for the children in this subgroup. Thus, there are alternative paths to school-related outcomes shown for both married subgroups, one directly to the school and the other via self-perceptions, social supports, or both mechanisms. These alternative routes can be tested in models specifying simultaneous equations, which will be a next step in our analysis of these data. Another step in probing for mediating factors in the worlds of these two-parent families will be to examine the involvement of the fathers in the workings of those families and interactions with the children, to see whether some aspect of that involvement helps to determine how the children perform in school.

One other aspect of the results reported in this chapter deserves mention both as a link to some of the results reported earlier in the report and a prelude to discussion in the final chapter. Time and again, as we compared the slopes of the regressions of one ecological subsystem on another for the program and control groups, we found a moderately positive regression line for program families being contrasted with a rather more sharply negative slope for control families. Put in terms of program impact, these contrasts strongly suggest that this empowerment program has prevented more than it has enhanced; the somewhat positive relationships seen for program families become much more significant when compared with the negative relationships visible in the data collected from the control families. These findings have real implications for how family support programs are conceptualized and the expectations associated with them. These and other integrative themes are discussed in Chapter 8.

CHAPTER 8

BETWEEN CAUSE AND EFFECT: THE RANGE AND COMPLEXITY OF PROGRAM IMPACTS

Moncrieff Cochran

When the Family Matters program was first formulated in 1976, it had several interlocking goals. One was to develop and implement a program of family supports for parents and their young children based upon the assumption of strengths rather than deficits, which would give positive recognition to the parenting role; exchange information with parents about children, neighborhood, and community; reinforce and encourage parent-child activities; encourage mobilization of informal social supports; and facilitate concerted action by program participants on behalf of their children. There was also a more general aim: to understand better what constitutes "resources" to adults responsible for raising their own children. Finally, we were interested in the program as a way of nudging the social and psychological arrangements made by parents to accommodate their particular life circumstances, in the hope that responses to such a stimulus might cast in sharper relief the key features of family ecologies and contribute to our scientific understanding of family life.

The evaluation of the Family Matters program presented in this final report to the National Institute of Education has focused more on the scientific than the program development and implementation goals established by its originators.[1] It has been guided by three main questions, which provided the framework for the NIE contract renewal proposal (Cochran, 1980). First, has the parental empowerment program influenced the natural ecologies of families so as to affect the behavior of children? Second, where effects can be detected, what are the causal links between program inputs and child outcomes? Finally, how do identified effects and processes vary for different family types? In this concluding chapter we begin by providing answers to these questions.

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[1] Evaluation of program processes has been carried out by Dr. Burton Mindick, with support from the Carnegie Corporation. For more information please write to Dr. Mindick at the Cornell Institute for Social and Economic Research.

Attention then shifts to a number of themes flowing out of the answers. How did the program have its effects? By providing an advantage to participants, or protecting them against slippage? Was inclusion of so many "process" variables worth the research effort, or could we have learned as much without them? What leverage was gained by our unusual investment in the mapping of social supports? Do the data provide any insight regarding the concept of empowerment as a process? What about the program itself: do our findings serve to underscore any particular aspect of its design or operation? We close the chapter and the report by considering two questions especially pertinent to the National Institute of Education. Where do the educational attainments of parents fit into the picture, and what can educational institutions learn from this time-consuming and expensive research and demonstration effort?

8.1 DID THE PARENTAL EMPOWERMENT PROGRAM AFFECT THE BEHAVIOR OF CHILDREN BY INFLUENCING THE NATURAL ECOLOGIES OF FAMILIES?

This question requires an answer in two parts. The first pertains to whether the behavior of children was affected at all by their families' inclusion in the empowerment program, regardless of how those effects were accomplished. The child behaviors for which there is information consist of school performance as reported by elementary school teachers. Our analyses indicate that involvement with the program did indeed have a positive effect upon children's school performance, but that it was limited to certain kinds of families. A direct, positive relationship was found for the children of married couples whose parents had a high school education or less. For the children of unmarried mothers the effect was less direct; program involvement was related to growth in the nonkin sector of the mothers' primary social network, a more positive view of herself as parent, or more parent-child activities, and these changes were in turn associated with better school performance by the six-year-olds in those families. (These findings are shown in Figure 7.5.)

One feature common to all of the subgroups for which positive school effects were found is their less advantageous position in the social structure. Single mothers almost invariably have fewer educational and monetary resources than do married mothers, and our particular sample fits this general pattern. Positive school outcomes were associated with the children of less educated parents, whether from two-parent or one-parent families. This finding held for both Caucasian and Afro-American children.

While there is satisfaction in knowing that a program designed to build family strengths can translate into improved school performance for some children, these findings are, in themselves, hardly a ringing endorsement for the program as a sound financial investment by a community. Other factors being equal, greater impact upon more children could be expected of a program that cost about $800 per child per year over the three years of its involvement with main-study neighborhoods. At the same time, these findings have greater significance if understood within the context of certain constraints faced by the project. First, many of the families in Syracuse, New York, like those elsewhere in the U.S., were experiencing severe economic stress, as implementation of the program (1978-81) coincided with the worst economic downturn since the Great Depression. Second, teacher perceptions of child performance in school represent a limited range of possible child outcomes, and so may not do justice to the program's effects. Third, the actions of program workers regarding school-related subject matter were delimited by the requirements of a major funding source, the National Institute of Education. Workers were permitted to address parents and children directly on school-related matters, but were not allowed to initiate direct contact with the schools. NIE imposed this restriction in order to keep the effects of working with teachers from contaminating those resulting from involvement with parents. However, this one-armed approach meant that while parents and children could be supported in preparing for school, no effort could be made to prepare schools for children and families. Finally, it is important to appreciate the fact that the program ended before the children entered the first grade, and well before data about them were gathered from their teachers. Program activities ended in June, 1981, the children began first grade that September, and data were not gathered from the teachers until April-May of the following year. Thus effects of the program were still evident almost a year after its termination. Still, it is difficult to justify the investment in terms of these school outcomes alone.

The Comparative Ecology of Human Development/Family Matters Project was much more than simply an attempt to provide family support that would have beneficial effects upon children. Mentioned earlier as scientific goals were the identification of key features of family ecologies and a better understanding of what constitutes valued resources to the parents of young children. The second part of the lead question guiding our investigation involved the natural ecologies of families: "Has the program _influenced the natural ecologies of families_ so as to affect the behavior of children?" Addressing this part of the larger question involved a conceptual model that included key aspects of family ecology, and the linking of those ecological domains to the relevant child behaviors _as a function of program involvement_. The reader can see in Figure 7.5 that the family-related ecological variables at issue for the child and included in the model (Chapter 2) were the mother's informal social network and her involvement in parent-child activities (joint activities). As mentioned earlier, greater increases in the number of nonkin included in the primary networks of unmarried mothers are associated with better performance on the teacher-report variables. This improved performance, while seen on the entire range of school outcome variables, was stronger for those involving personal adjustment and interpersonal relations skills than more cognitive measures (grades in reading, writing, math, etc.). It is equally clear from Figure 7.5 that greater amounts of joint parent-child activity, at least as measured by us, were less likely to be linked with school outcomes in a manner that distinguished program from control children.

As the lines in the figure also show, for the children of couples there are direct relationships between program assignment and school outcomes, especially the more cognitive ones. In the black, married subgroup there was no significant association with the "family ecology" or "process" variables in the model. In this case, then, we are unable to specify, beyond the difference in family structure, which feature of the ecologies of these families might be influenced by the program in ways that in turn foster improved school outcome scores.

On balance, one can identify informal social supports as aspects of the natural ecologies of families that appear to have been influenced by the program and related to child behavior for certain families. At the same time, there appear to be some program effects that cannot be understood in terms of the ways that the program influenced aspects of family ecology. The presence of a second parent in some of these families may provide a clue to the process involved, but as yet we are unable to specify the meaning of that clue, and must acknowledge either the incompleteness of our model or the inadequacy of our measurement. The model will be expanded for future analyses to include data gathered by the project about father involvement in the childrearing process, in the hope that this aspect of the family ecology in two-parent families might provide more information about how program involvement translated into improved school outcomes for children in these families.

In assessing the scientific contribution of this research to the understanding of processes involved in the ecology of family functioning, it is important to point out that the mother's view of herself as a parent occupies a rather central position in the pattern of associations summarized in Figure 7.5, especially for white, single parents. While these perceptions occupy the psychological rather than the ecological field of forces encompassing the mothers who served as respondents, one might think of them as part of the defining characteristics of those mothers from the point of view of the children whose behavior is at issue, and in that sense an important element in these children's ecological fields. Although psychologists and sociologists interested in human ecology certainly recognize the importance of understanding the perceptions of the respondent from her own point of view (Thomas and Thomas, 1928; Mead, 1934; Bronfenbrenner, 1979), those of us involved in conceptualizing this research undertaking did not give self-perceptions any prominence until nudged by one of our Welsh colleagues (David Reynolds). We did not really begin to come to grips with data bearing upon those perceptions until mothers in the Syracuse program began to manifest visible changes in physical appearance, accompanied by indications that they felt more confident about what they were doing with their children. The findings reported here validate our intuitive impressions of those mothers, and underscore the importance of including perception of self as an element of future evaluation studies. The key role played by this concept in our understanding of the empowerment process has been referred to in Chapter 1, and will be reemphasized later in this final chapter.

We are able to conclude, taking what has been learned about perceptions of self, parent-child activities, and social networks into account, that there is evidence enough to respond affirmatively to the question, "Did the program affect children's behavior by influencing the ecologies of families?" Using these data it is possible to refine considerably future inquiry by specifying a set of more differentiated hypotheses. As those hypothesis must take into account the other two general questions guiding this evaluation, presentation of them will await discussion of those questions.

8.2 WHERE EFFECTS ON CHILD BEHAVIOR CAN BE DETECTED, WHAT ARE THE CAUSAL LINKS?

None of the analyses carried out for this report permit us to make conclusive statements of causality. Most of the data generated by the study are poorly suited to establishing cause and effect with certainty. Because the "target" children were only three years old at the start of the project, we were unable to gather school performance scores at baseline. If the study were to be replicated, the addition of baseline data on the child's level of cognitive and social development would be strongly advised, in order to ascertain that differences in school outcomes observed at follow-up were not simply a continuation of preexisting differences in skill levels. And while joint parent-child activity levels were measured at both time points, considerable change in the developmental levels of the children over the 3-year period, combined with the later reduction in time available for joint activities due to the children's entry into school, make it difficult to determine the equivalence of the baseline and follow-up activities data. Information pertaining to the mother's estimate of her abilities as a parent was gathered at both time points but with somewhat differing methods. Only the social network data are truly equivalent at both time points, which explains why it was only with those data that change scores could be used with confidence to measure program effects.

Having acknowledged the inadequacy of these data for *determining* causality, it is comforting to be able to propose that, taken in aggregate, they serve rather well for the purpose of *hypothesizing* causality, remembering that it was this "scientific discovery" that was specified in the contract with the National Institute of Education (Cochran, 1980). The prominence in our findings of what were originally conceived as "intervening" variables provides fertile ground for hypothesis generation. It is in fulfillment of that promise that we offer the following hypotheses addressing possible causal links between program inputs and school outcomes.

> *Hypothesis Ia.* That the number of "especially important" (primary) adults providing support to the mother expands as a result of involvement with a parental empowerment program.
>
> *Hypothesis Ib.* That this increase in number of primary adults supportive to the mother contributes to improved performance by her child in school.
>
> *Hypothesis Ic.* That the causal chain proposed in Hypotheses Ia and Ib operates primarily for single parents.

The differences between control and program groups in growth of the primary network over time are well documented in our data. These changes are not artifacts of the data collection procedure; they exist within the context of overall size reductions in the networks of a number of the sample subgroups. They also persist in the face of control for the influence of socioeconomic variables. Because these changes occurred subsequent to program assignment, it is difficult to sustain an argument for reverse causality, and our efforts to attribute the differences in amount of change to an influence other than the program have thus far proved unsuccessful.

More difficult to make a case for is the second link in the proposed causal sequence -- between increased size of the mother's primary network and improved performance by the child in school. The following argument can be made with the data at hand. The mothers for whom the apparent relationship holds are unmarried, and most are raising their children by themselves. The critical increase in the size of the primary network involves nonrelatives. A look at the content of the relationships with these key friends reveals extra assistance involving emotional support, day-to-day borrowing, and to some extent financial assistance. Such close friends appear, then, to be providing a stabilizing influence for the mother, and our hypothesis suggests that this stability carries over to provide the basis for improved performance by the child in school. How might this occur? Perhaps it is important to note that the school outcome variables most positively associated with higher numbers of primary nonkin were *relationship with teacher*, *interpersonal relations*, and *personal adjustment*, rather than the more cognitively oriented report card scores (although there was some carryover to these variables as well). The impression is of children with interpersonal skills and confidence in the classroom that stem from consistent and reasonably positive feedback, sensible behavioral limits, and functioning models of interpersonal exchange in the home. Network-related reduction of stress could provide a context for such stability. It will be interesting, when analyzing the children's networks, to see whether these same key adult nonkin appear there as well, and if so, what roles they play for those children.

What alternative hypotheses deserve consideration here? It is always possible that some other extraneous influence is covarying with nonkin primary membership to affect the children's behavior in school. The search for such an influence will continue. Perhaps (looking at Figure 7.5) the arrow goes the other way, with, for instance, more socially able children at school making friends whose parents then meet and become close friends.

Such a possibility cannot be ruled out. It is instructive to note, however, that the direct link to program assignment is with nonkin primary membership rather than with the child's social behavior in school.

Hypothesis 1c serves to limit the prediction to one-parent families. Our data suggest that the network changes of married mothers are not implicated in the school performance of their children (Figure 7.5). Just what processes might be operating to cause the program-related differences in cognitive school outcomes of children in two-parent families is unclear from the data analyzed to date. (As mentioned earlier, our next step in the search for a clearer explanation of those differences will involve the data collected about the father's involvement in family activities.)

Hypothesis 2a That the mother's perception of herself as a parent is altered by involvement with the program.

Hypothesis 2b That mothers experiencing these perceptual shifts become more active beyond the home on behalf of the child.

Hypothesis 2c That this causal sequence is not limited to mothers of a particular race or marital status.

We view this proposed causal chain as more questionable than that encompassed in Hypothesis 1a becuse, as shown in Figure 7.5, the relationship between program assignment and the mother's contact with the school appears to be both direct and mediated by self-perception. The seemingy direct relationship between self-perception and program assignment, with increases for white, single program mothers and decreases for black, married mothers in the program, cold actually be an artifact resulting from a causal chain running directly to experiences with the school, the effects of which were then to enhance (white, single) or dampen (black, married) self-perceptions. However, because program workers emphasized positive recognition of the parents' importance to the child from the very beginning of their experiences with families, and only addressed home-school communications in the final six months of operations, it is reasonable to speculate that changes in self-perception occurring earlier in the life of the program led to more active parental involvement in activities given prominence by the program workers later on. The set of relationships shown in Figure 7.5 for white, unmarried mothers lends some support for this sequence of changes, because it also includes links between self-perception and increases in both kin and nonkin at the primary network level. There is good conceptual reason to expect the mother's feelings about herself to be influenced by changes in these close relationships, and therefore we are inclined to view relationships among program assignment, primary network, and perceptions of self as parent as an interlocking system, producing the extra impetus to become involved with the school in those instances where the child was seen as not making normal progress.

In the case of married, black mothers, the picture is not as clear. The strongest path of effects would appear to be not via self-perception to home-school contact, but rather directly to the school and then reflected back into perception of self. The logic implied here would suggest that contacts with the school, rather than involvement with the Family Matters program, had a dampening effect upon the self-perceptions of these parents. To shed further light upon this possibility, we examined the parents' responses to a direct question regarding their relationship with the child's teacher: "How do you feel about how _____'s teacher treats you?" The responses indicate that the black, married mothers in the program did feel somewhat less positive than those in the control group about how they were treated by the teacher ($p = .10$). But their ratings were still well over on the positive side of the scale (4.0 of a possible 5.0), and appear to be more associated with less satisfaction in general by program mothers in two-parent families ($p = .03$) than a disenchantment specific to the black, two-parent subgroup. Our impression during conduct of the program was that a number of these married parents became quite sophisticated in the skills involved in critically assessing the appropriateness of a given school or classroom for their children. This more critical eye could account for the somewhat lower scores given by them to their treatment by the teacher. All things considered, our hypothesis is that involvement with the program made the black, married mothers both somewhat more critical of themselves as parents and more eager to make contact with the teacher when the child didn't seem to be making satisfactory progress in school. Both effects are theoretically plausible, and the two need not be thought of as in conflict with one another.

Hypothesis II is explicitly not restricted to mothers of a particular race or marital arrangement because the data suggest that the causal chain operates across those differences. One wonders, then, why the self-perceptions of black single and white married mothers were unaffected by the program. Examination of the subgroup means for the perception of parenting variable indicated that the strong positive direct effect for white single mothers was due to an unusually low mean for that control subgroup rather than a much higher program mean. In other words, program involvement appeared to have prevented what otherwise might had been considerable deterioration in self-regard, at least in comparison with the rest of the sample. Such substantially lower perceptions were not evident for the black single and white married control subgroups, leaving the program no room to perform a similar "prevention of loss" function.

8.3 HOW DO EFFECTS AND PROCESSES VARY FOR DIFFERENT SUBGROUPS?

Distinctions by race and family structure proved to be so crucial to understanding our data that these groups were, throughout the entire analysis process, the primary basis by which to present and explain findings. There is no need to reiterate here the patterns of variation produced by the different family types; those differences are dwelt upon sufficiently in the earlier chapters. Suffice it to say that the stresses and supports being experienced by American families simply cannot be understood without distinguishing cultural groups and marital status. Nor are even these differentiations sufficient: our data indicate that location in the social structure of American society has effects beyond race and family structure. Of course this further distinction by social class proved most salient with the white, two-parent subsample because this group contained enough middle-income families to permit statistical comparisons by socioeconomic status. The

Afro-American and single-parent families in our sample were concentrated, as they are in the population as a whole, in the lower end of the socioeconomic spectrum.

Of the two basic stratifications in our sample, race and marital status, the latter was clearly the more powerful in explaining differences. This power was especially evident in our search for processes related to the transmission of program effects. These data strongly suggest that couples are able to bring their program experiences directly to bear upon the school-related support of their children, while for unmarried (usually single) parents such support seems to be contingent upon the interim building of self-confidence and/or social network supports.

8.4 FAMILY SUPPORT AS RELIEF FROM STRESS

One distinction that became increasingly salient for us as interpretation of these data proceeded is between supports for families as enhancing growth vs. preventing deterioration. The traditional expectation associated with an intervention desigred to affect outcomes in children has been that the children receiving the special treament will then perform better than an equivalent control group. During the past 20 years, the assumption underlying such a model was that the intervention was compensatingfor some deficiency in the child's life circumstances that would otherwise limit performance. An alternative to this standard stance is one in which the intervention is thought of as preventing the loss of certain family or environmental functions and therefore making possible the maintainence of child performance at an acceptable level. Here the assumption is not that there is a deficiency that needs correction, but rather that a system capable of functioning adequately deserves protecting. The concept of supporting the family, or family supports, or family support systems, is based on this second model. The family is conceived of as a system that, if given an opportunity to function in a relatively stress-free environment, can fulfill the basic developmental needs of the children in it. Under conditions of high stress, however, the needs for survival o individual members may reduce or eliminate their capacity to interact in the service of each other.

If the purpose of family support is to prevent loss of family functioning, then one would expect there to be instances in which no change in the program group was accompanied by *decreases* for control families. The first example of this sort was reported in Chapter 3 for the relationship between reductions in family income and the child's performance in school. For control families, lower incomes were associated with poorer school performance, for all groups but the married whites. This income-related decrement did not appear for the program families in this subgroup, suggesting to us that participation in the program buffered those families against the effects of reduced income. This impression was reinforced by indications in the social network data (Chapter 6) that financial support from network members had eroded somewhat less for white, single mothers in the program than for those in the control group. It is underscored yet again in Chapter 7, which shows the relationship of networks with school outcomes, parental perceptions, and home-school communications. Repeatedly, the pattern for white, single mothers involved strong negative regressions for the control group balanced by flat or moderately positive ones for the program group, controlling for mothers' educational level. This suggests, in the case of networks, that the program did more than simply increase the numbers of nonkin in the networks of these mothers: it also seemed to affect how those special nonkin *were brought to bear* on other aspects of family life. In the control group, increases in primary nonkin were associated with decreases in school outcomes and mothers' perception of self as parent, while in the program subgroup there was no change or a moderately positive increase in the school or self-perception scores. This same pattern was observed for the link between self-perceptions and home-school contacts. The impression that accumulates from these data is that the strong positive *direct* associations between program involvement by white, single mothers and both their perceptions of themselves as parents and the support they received from close friends served to buffer the child against problems in school. The dynamics of this buffering process are only conjecture at this point, but a clue may be provided by the indication that when their child showed signs of having difficulty in school those same mothers were also found to be in regular contact with the child's teacher. The general point is that interventions preventing a significant loss in the functioning of family members should be viewed with as much interest as those which produce gains in performance relative to controls. In fact, one might argue that the preventive role is the more important one, if it is accomplished by strengthening the family rather than usurping its role and functions.

This prevention-production continuum can be formalized in terms of a hypothesis:

> *Hypothesis 3*. That a parental empowerment program consisting of the provision of support through positive verbal recognition, information, referral, and establishment of peer clusters will show its effects over time as much through prevention of negative changes in the development of family members as in the production of positive changes.

Support for this buffering hypothesis is really contingent upon the capacity to show that changes in the outcome of interest are a function of changes in intervening or "process" variables that can be linked to the intervention. We have presented informal supports and parental self-perceptions as processes with buffering potential. One advantage to a program that works through such "processes" is that these mechanisms have the potential for maintaining a certain amount of their power beyond the life of the program. If mothers really are viewing themselves more realistically and in a generally positive vein, and have also strengthened their ties with friends and relatives, then these added personal resources may play a future role in assisting the child through school and other community activities. This is the notion of a "convoy" of social support, originally introduced by House (1980), which we were mindful of when designing the Family Matters program to focus on what we believed to be key process components of family functioning.

8.5 THE UTILITY OF PROCESS VARIABLES

The inclusion of "process" variables in a conceptual model for evaluating the impact of an intervention complicates matters at virtually every stage in the life of the project. In the case of Family Matters, reams of additional data about self-perceptions, networks, and parent-child activities had to be collected both prior to and following implementation of the program. The costs of gathering, preparing and analyzing these data were substantial. Do the results justify the investment?

One way to answer the usefulness question is to look at Figure 7.5. Imagine the diagrams as they would look if only containing the direct relationships between the program and school and home-school outcomes. Affected the most by removal of all the links to "process" components would be the single parents in the sample. The impression created would have been that one-parent families had not responded to our parental empowerment approach.

Beyond simply missing the fact that certain of the children in single-parent families had shown improvements in school behavior that could be associated with program involvement, the removal of the "process" variables from the model virtually eliminates any opportunity to learn what it was about the program that seemed to make a difference to those involved with it. For instance, we invested a great deal of effort in discovering ways to give positive recognition to parents for the vitally important roles they were playing in the lives of their children. The supposition was that parents needed to feel confident about themselves as parents before they could be expected to become actively involved in the more "executive" aspects of the parenting role. The summary of findings represented by Figure 7.5 certainly suggests that for two of the four subgroups represented in the sample, perception of self as as parent plays an active role in determining whether parents become involved with their child's teacher when there is indication that the child is having school difficulty. While the nature of the data permits only the generation of hypotheses, the findings are nevertheless intriguing. They are also not of the simple "more is better" variety, as indicated by the fact that for married Afro-American mothers more school involvement was accompanied by a drop in regard for self as parent. The point is that the findings can be translated into policy at the program level. They clearly imply that white, single parents will only become actively involved with the teachers of their children if they feel reasonably good about themselves as parents, and suggest that programs can be designed to stimulate positive changes in such self-regard. The same kind of argument can be made for social networks and school outcomes, again especially for mothers and children in single-parent families. Such reference to specific aspects of the content of the program would not have been possible in the absence of data about "process."

8.6 SOCIAL SUPPORTS AS MEASURES OF PROGRAM IMPACT

The foregoing discussion of ecological processes is no longer conceptually novel, in the light of recent work in the areas of stress and coping by Pearlin and others (Pearlin et al., 1981; Pearlin and Schooler, 1978). When this research was first funded as a proposal in 1976, however, the idea of including informal social networks as a concept embodying the general notion of informal support systems was rather new to the social science community. Even more unusual was the investment in operationalizing the concept as a dimension of family and community life amenable to change as a function of involvement with a community-based program of family support, in this instance Family Matters. We have been unable to uncover a single published instance in which changes in informal social ties were postulated as an impact of an intervention in their own right. Family Matters not only proposed changes in informal networks as a program effect, but also gave them a prominent place in the conceptual scheme of things, as evidenced by the fact that "networking" was a key feature distinguishing our original Program I (home visiting) from Program II (cluster-building). Was this a wise scientific investment? Should others include the concept in their program development and evaluation efforts?

8.6.1 Networks and the Unmarried Mother

One answer to these questions is contained in the earlier discussion and reflected in Figure 7.5. The addition of key nonrelatives to the mother's network is associated with improved performance in school for the children of unmarried mothers, most of whom were single parents. This finding holds across races. It provides insight into the needs of a family type already of significant size in the United States, which over the past 10 years has grown considerably as a proportion of all the families with young children in our country. While work remains to be carried out in an effort to describe more fully the key additions to these mothers' networks, the indications given by our analyses to date are of some women who do not passively accept social relationships offered them through the good offices of the program, but rather are encouraged by involvement with the program to redouble efforts already under way (to some degree) to marshal social resources for the many demanding tasks at hand, one of which is raising a young child. And success in recruiting such assistance seems to have payoff both for mother (self-regard) and child (school performance). One implication of these findings is that the concept of social support for the childrearing process should be expanded beyond the traditional spousal relationship to include, as an alternative, a network of friends and relatives. The findings also underscore the importance of better understanding of what forces might enhance or impede the process of mobilizing those resources.

8.6.2 Kinship and the Afro-American Family

Lest there be a tendency by the reader to equate social supports primarily with social ties beyond kinship, we hasten to correct any misconception by referring again to Chapter 6, where the data indicated that three of the four subgroups (defined by marital status and race) showed increases in primary kin ties associated with program involvement. An important characteristic accompanying this relationship was the race of the mother. Afro-American mothers were significantly more likely than Caucasian mothers to increase their involvement with primary kin if included in the program, and this carried over to unmarried women. It would be easy to dismiss this finding as an inevitable result of minority status, racism, and poverty, saying that such women are forced to rely on close relatives because of limited access to social relationships with members of the white majority and the cost of maintaining social ties with nonkin. Such a view, while seeming to fit the data, is deficit driven and incomplete. More productive for all concerned is the view that Afro-American families provide one of many models for carrying out the rearing of the young in our culture, and that kinship in general plays a larger role in those families than is the case for American Caucasians. This view implies that any model should be evaluated on its particular merits, and in this case some of those merits can be identified in our data. There was the indication in Chapter 6 that black, unmarried mothers in the program received financial assistance from greater numbers of relatives over time, despite the sharp recession, while the reverse was true for the white, unmarried subgroup. And the findings reported in Chapter 7 indicate that, in both black program subgroups, increases in the number of primary kin reported over time were associated with larger amounts of parent-child activity. No signs of negative impact associated with kin ties surfaced to counterbalance these positive indications, leaving us to conclude that these families have lost nothing, and may well have benefited, from growth in their relationships with relatives.

8.6.3 Network Changes: A Good Thing?

At the end of Chapter 6 we wondered whether a program of social support like Family Matters makes a positive contribution by speeding the movement of mothers and their families toward patterns of informal social relations that they might otherwise realize more slowly, and perhaps less fully. This research addresses that question through an examination of links between program-related network increases and other process and outcome variables, as portrayed in Figure 7.5. The question can now be answered more or less definitively, depending upon the subgroup of interest. The network appears to be a key transmission center for white, unmarried mothers, primarily through the nonkin sector, the growth of which is positively associated with perception of self as parent and the child's performance in school. Black unmarried mothers involved in the program also showed substantial growth in the network, with kin linked to increases in parent-child activities and nonkin to improved performance by the child in school. There is also the hint of a negative relationship between perception of self and expansion in number of primary nonkin. Less can be said about the impact of expanded primary kin networks for program mothers in the married subgroups, where the only link was with parent-child activities for the Afro-American portion of the sample. On balance, there is little in our data to indicate that the expansion of the primary network associated with participation in the Family Matters program has deleterious consequences, and considerable indication of positive contribution, especially for unmarried mothers. A different set of outcome measures might have led to an alternative conclusion, of course, but our data leave us cautiously optimistic about the consequences for mothers and children of facilitating network-building activities.

The word "cautious" has precedent in the Family Matters program, especially as related to social networks. Because there was concern about disrupting or changing the social ties of families participating in the Family Matters program, the program was never advertised as designed especially for network-building purposes, nor did any impetus develop to become especially activist in that regard. Neighborhood cluster-building was an avowed goal, but espoused much more in the interest of collective action on behalf of child, family, and neighborhood than to provide parents with material and emotional support. The kinship potential in the networks was virtually ignored; we made no effort, for instance, to encourage parents to invite relatives to home visits or cluster group meetings, although kinfolk did attend some of those occasions in the normal course of events. So it is fair to say that our networking initiatives were quite passive, and that many of these findings might be expected, therefore, to be associated with any facilitating program of family support. This also implies that greater change in network ties might be accomplished with more systematic attention to and publicity for network-building as a goal. This more aggressive strategy could also lead to unanticipated negative consequences, and so should be approached carefully and with the full knowledge of participants.

8.6.4 Networks as Convoy

One of the exciting aspects of social supports as program outcomes is their potential for the development of the individual in the future as well as the present. House (1980) uses the convoy analogy, mentioned earlier, which we also find useful. Such an analogy clearly implies that network changes associated with the program might be as strongly linked to subsequent developments in the child as they are to more immediate ones. The findings reported here begin to provide outlines for the forms of transport making up such convoys. One vehicle is likely to be composed of close friends and relatives committed to the welfare of both parent and child. Another is parental self-confidence. A third vehicle, and perhaps the one to be heading the convoy, is the parent's level of formal education. Contained in these conveyances are resources essential to sustaining the child throughout the developmental journey: human energy, time, material goods, information, skills, emotional support. This evaluation of the Family Matters program provides evidence to bolster the contention that some environments are more likely than others to produce and maintain such supports in their transactions with parents, and that steps can be taken at the community level to change environments in ways that facilitate family functioning.

Now we can return to the questions raised in the beginning of this section. Was it wise to invest so much time and money in understanding informal networks as sources of social support? We are convinced that it was, and that the data bear this out, although a more impartial judgment of the matter is needed. Should others include the network concept in their program development and evaluation efforts? We believe, yes, if they wish to build strong communities and understand how program inputs are transmitted into the social fabric surrounding families and transformed into messages affecting the attitudes and behaviors of family members.

8.7 THE ELEMENTS OF SUPPORT FOR FAMILIES

It should have been clear from the description provided in Chapter 1 that a great deal of conscious effort was expended in the design of both the overall approach and specific elements of the Family Matters program. The findings of this evaluation can be used to assess various aspects of the intervention itself. In the discussion that follows, issues are raised that in our view deserve consideration by anyone involved with the design or implementation of a program having the support of families with children as its primary goal.

8.7.1 Program Options and Family Needs

The reader will recall from Chapter 1 that Family Matters originally consisted of two separate program options, one focused on home visiting (Program I) and the other emphasizing the building of neighborhood clusters (Program II). Nine months after beginning program delivery, the two options were combined, with both home visits and cluster gatherings made available to all program families. As was indicated in Chapter 2, families selected themselves into all of the possible combinations permitted by these several options. Because of the self-selection involved, we have not distinguished the several program combinations in most of these analyses, but rather have focused primarily upon differences between program and control based on neighborhood assignment. It is interesting to note in Chapter 6, however, that the greatest changes in social networks were observed with mothers under high stress assigned to the home-visiting program, some of whom went on later to become involved with clustering. These data certainly suggest that the occurence of network building is not dependent upon the inclusion in the program of networking activities (like neighborhood clusters). The hypothesis emerging from Family Matters is that the personalized attention provided parent and child by the home visitor, if combined by that visitor with a parental empowerment orientation, leads to a change in perception of self by that parent which in turn fuels more active involvement in network relations.

It was also clear that a number of the Family Matters parents felt no need for home visits, and were ready from the beginning to work with each other in groups. For these parents, most of whom were Caucasian and middle income, it was important to have the clustering option available from the start. Thus, the conclusion we reached was that families in different circumstances have differing needs and program inclinations, and that a program offering a range of options is the most effective because parents can design their involvement to fit those particular needs.

8.7.2 Level of Participation: How Much is Enough?

While all program families were encouraged to become as actively involved with program activities as possible, the program staff respected parents' rights to define their own levels of involvement, and this resulted in participation levels well distributed along a continuum from highly to marginally active (see Chapter 2). While level of program participation had not been discussed in the original proposal to NIE as a factor likely to contribute to program impact, realization that there would be variation in amount of participation led us to develop a system for recording information about each contact with a program family. Once developed as a continuous variable, level of participation was applied to findings on process and outcome measures to determine whether greater participation was associated with greater change in those variables.

While there is more work to be done in relating level of involvement with our measures of process and outcome, enough has been accomplished to convince us that the data do not contain obvious relationships. We are puzzled by the absence of a relationship between greater participation and higher scores on the variables of interest, especially where the emergent patterns of program-control difference seem otherwise to be consistent and reasonable. Does the absence of such a relationship cast doubt upon all of our other findings, or is the measure of participation level, created as an afterthought, too inaccurate to distinguish those participating heavily from those much less involved?

This problem of participation level has been intractable enough to force serious consideration of the possibility that overall participaton level really doesn't make much difference for effects upon process and outcome variables, as long as there is enough exposure to familiarize parents with program expectations. Such a hypothesis, to be plausible, would presuppose that the program finds parents initially in highly varying states of mind and experiencing various levels of stress and support. Thus, in one instance, two home visits might combine with high energy levels and the availability of key resources to produce large amounts of change, while in another, 20 visits would be needed to penetrate the apathy caused by a very low self-regard and negative social influences and to stimulate only the faintest movement in our measures three years later. At any rate, we conclude that the meaning of more or less participation is much more complex than we first imagined, and encourage the reader to at least entertain the notion that in certain instances a modest exposure of parents to a heavily empowerment-oriented experience might have a significant effect. We are continuing to look at our data in new ways, with the hope that a clearer understanding of what more or less participation means will emerge.

8.7.3 Program Goals and Process Outcomes

Reference was made earlier in the chapter to the added insights provided by inclusion of "process" variables in the assessment of program impacts. Those variables are again pertinent when considering program content and its relation to outcomes in mother and child. Suffice it to say that program workers were encouraged through training to work hard at building self-confidence in parents, introducing them to one another through neighborhood clusters, stressing the importance of joint parent-child activities, and stimulating parent-teacher communication. The data suggest that involvement with the program was associated with positive changes in each of these areas for one or more of the family subgroups. Our impression, both during program operations and in retrospect, was that workers were especially effective in the area of parental self-esteem and could have had greater impact in each of the other three areas. The experiences of program workers in Syracuse have served as the basis for the development of educational materials for parents, teachers, and home visitors, which should make others providing support to families more effective at stimulating the processes we continue to believe are conducive to effective childrearing (Dean, 1983; Cochran, Dean, Dill and Woolever, 1984). The results of this evaluation encourage us in our conviction that such intervening variables are essential to effective support of families, that they can be affected by program operations, that they are measureable, and that inclusion of them in program evaluation can shed light upon program implementation as well as impact.

8.7.4 The Empowerment Process: Fact or Fiction?

In his most recent writings, Cochran (1985) has postulated the existence of an empowerment process consisting of a series of stages. He proposes that positive changes in self-perception (Stage I) permit the alteration of relations with members of the household or immediate family (Stage II), which is followed by the establishment and maintenance of new relations with more distant relatives and friends (Stage III). Stage IV is seen as information-gathering related to broader community involvement, followed in Stage V by change-oriented community action. MacDonough (1984) has shown that parents can be located at different points along such an empowerment continuum, and that for the first four stages a high score on a later stage is related with high scores on previous ones. She is also able to identify a subgroup of parents, relatively less educated than the sample as a whole, who involve themselves in efforts at community change without much prior investment in studying the issue and the situation, indicating that Stage V (community action) is not dependent upon Stage IV (information-gathering). Through this evaluation we have mapped out a rather complex set of direct and indirect relations in an effort to assess the impacts of an intervention designed to empower parents on behalf of their children and themselves (although the empowerment terminology emerged from, rather than anticipated, the intervention). Do these findings support the notion of empowerment as a process with a series of stages?

In examining the implications of this question, one quickly realizes that it makes data demands that our study is not able to meet at this time. First, fully comparable measures of perception of self as parent at baseline and follow-up are required to determine both where mothers were at baseline in relation to Stage I and whether program involvement had changed this status in ways not reflected in the control group. A second shortcoming involves the absence of any measure for the information-gathering (Stage IV). Again, data are available elsewhere in the study, but they are limited primarily to information about elementary schools gathered only at follow-up. A third weakness involves our current measures of Stages II (relations with household members) and V (community action). Relationships with household members involve more than parent-child activities, and community action more than activities related to the child's school. In both instances our data base can provide information with which to expand understanding of those processes (with wife-husband relations for Stage II and other community institutions for Stage V), but such elaborations are beyond the scope of this evaluation.

It can it can be said, however, that what has been learned to date about the effects of the Family Matters program does not contradict the general concept of empowerment as a process including changes in self-perception and relationship with others both immediate to and more distant from the changing person. The findings do point to the possibility that constructive change in perception of self may not necessarily be in the direction of more positive feelings, depending upon the perceptual point of departure at the beginning point of the intervention. Thus, within certain limits, the change in perception itself, regardless of valence, may stimulate other action. And, for certain of the families in our sample, this change shows solid evidence of being associated with variables like parent-child activities, primary network changes, and contacts with the school postulated to occur later in the empowerment process. As already mentioned, the temporal aspect of the hypothesized relations cannot be tested with these data. Future efforts using simultaneous equations may throw more light upon possible pathways through the data, but much will be left to speculation nevertheless. In any event, our experience with conceptualizing and then implementing a program explicitly designed to counter the deficit model, and then in examining what data we can bring to bear upon associated psychological and ecological processes, has led to a hypothesized set of relations that can now be examined more systematically in future evaluations.

8.7.5 "Universal" vs. "Categorical" Programming

An overriding theme emerging from this evaluation has been the relationship, generalizable across measures of both process and outcome, between fewer socioeconomic resources and stronger program-control differences. Time and again, program "effects" were found for the unmarried black, unmarried white or married black subgroups, or even for all three, which were undetectable or no more than trends in the data provided by the married, white mothers and their children. The irony in this distribution of associations with program involvement is that the three subgroups showing the greatest response together constitute only 45% of the total sample. Certainly, given these findings, there are those who would argue that therefore such a program should only be targeted to low-resources families, and not waste time with the others.

In response to such policy-related advice, we return to what appears to be a pivotal role played by perception of self in the relationships between program involvement and parent-child activities, home-school contacts, and possibly even some aspects of network change. These data plainly suggest that a program that enhances parents feelings about themselves in their parenting role is also one that has positive effects upon their relations with significant others in their near and more distant environments.

Suppose, rather than beginning our programmatic work with parents by reminding them of how important they were to their children, we had required instead that they prove, through financial means-testing, their eligibility for a service available only to the very poor. Certainly that opening would not have stimulated greater self-regard, and might well have had the contrary effect. Even with the best of intentions we would have lost families right at the point of selection who were unwilling to define themselves as "poor," thereby skewing the sample significantly. For those agreeing to participate, there would then be the challenge of convincing them of their importance and competence as parents after already underscoring their incompetence as providers.

Often during the tenure of the program, and especially in the beginning, program workers were asked, "What kinds of people is this program intended for?" and were relieved to be able to respond by saying, "Anyone with a three-year-old child." Their relief stemmed from the nonjudgmental, broadly inclusive nature of the response, which represented no threat to parents' beliefs about their own responsibilities and capacities. The questions of prospective participants and our understanding of the findings provided in this report strengthens our belief that the universality of the support provided was critical to its impact.

It would be naive to leave the issue of universal vs. categorical services without addressing the question of cost. Is there reason to believe that supports akin to those provided by Family Matters could be made universally available to families with young children on a cost-effective basis? Clues to a possible strategy for cost containment can be found in our data regarding use of the several program options offered Family Matters families. Cluster groups were most appealing to families living outside the city core, where there was little fear of crime and an initial perception of neighbors as benign or supportive. The home visiting option, which involved much higher per-family cost to the service provider, was most attractive to families in inner-city neighborhoods, who were likely to be afraid to venture out to night gatherings and were often suspicious of their neighbors. Thus, it is possible, *within the same program*, to provide different amounts of support to families with varying amounts of expressed need, and in differing circumstances. The expense of making repeated home visits to families expressing that need would be balanced by inclusion of a far greater number of families interested in one or two initial visits and then monthly gatherings with other parents. Our experience suggests that because middle-income parents express relatively little long-term need for community support, they can be included in a program at little added cost, while at the same time providing the benefits that offering the program to *all* families may bring to those with high need and low self-regard. If, as we propose, this nonjudgmental approach to eligibility produces more rapid movement to independent action and away from dependence, it would contribute directly to reducing the overall length of home-visitor service required by a parent with high initial need, and so reduce the long-term "per-family" cost of the program.

8.8 THE POWER OF EDUCATION

Preoccupied as we have been in this report with the school performance of six-year-olds, it is important not to lose sight of the role played by the schooling of their mothers in influencing the ways that those women responded to the opportunities provided by the parental empowerment program. Formal education is, after all, one of very few major interventions into the lives of all its citizens sanctioned by our culture and its governing institutions. The level of educational attainment achieved by the mothers in our sample proved strongly related to their self-perceptions, social ties, and activities with their children at baseline, so we hypothesized that mother's education would need to be controlled for consistently in analyses related to this program evaluation. In fact, a number of the findings reported in this document have been qualified by level of mother's education. In the interpretation of these results it is important, however, to recognize that these program-by-education interactions may either be the result of differences in educational achievement or a function of more general socioeconomic factors for which educational level serves as a marker.

The effects of the variable "mother's education" on the program findings are seen in two distinct ways. In one situation, higher education is needed before the program appears to have a positive effect. In a second situation, the positive program effects are seen only for families in which the mother has less education, presumably because these are the families for which there is considerable room for improvement or change by the program. An example of the first case is the positive relation for two-parent, white program families between joint mother-child activities and the child's performance in school, which holds primarily when the mother has more than a high school education. In contrast, the direct effects of the program on school outcomes are seen more strongly for children of women with 12 or fewer years of education.

Beyond these interaction effects, there are strong and predictable main effects by mother's education for most of our follow-up outcomes. Mothers with more than a high school education have more positive views of themselves and their children. They have larger and more variegated social networks. They report engaging in more activities with their children. Their children do better in school.

It is not too far-fetched, then, to propose based upon our data that schooling beyond high school may be as effective a "program" as that provided by Family Matters for bolstering the resources of families with young children. The implications of such a proposal are further elaborated at the conclusion of this chapter.

8.9 FAMILIES AND FORMAL SCHOOLING: SOME FUTURE CHALLENGES

The program of family support described and assessed in this report had a direct bearing upon formal schooling only to the extent that it advocated communications between home and school and affected families in ways that were manifested in the school performance of the children in those families. Some readers from the educational establishment might, therefore, be tempted at this point to conclude that, while interesting, the findings presented here have no significance for their attitudes and behavior. Such a conclusion would be false. Three new directions for educational policy emerging from this project are presented below as challenges to all of us involved with education and committed to the strengthening of family and community life.

8.9.1 Preventive Home-School Communications

Public schooling is touted by some in the United States as a kind of "universal entitlement," equally accessible to all segments of the population and prepared to embrace all children with equal enthusiasm. Yet our data on home-school communications indicate that most communications from teacher to family are deficit oriented. Often the first "personal" communication received by the parents from the school is triggered by teacher perceptions of inadequacy in the child. Such a negative message, uncushioned by any more supportive prior communication, is likely to stimulate a fearful and defensive response from parents, especially when the teacher or other school official implies in future exchanges that the real "problem" is parental lack of involvement with or commitment to the child. The challenge becomes, then, to reverse this downward spiral in home-school communications by starting the process off on a positive note, and creating an atmosphere of trust and supportiveness between teacher and parent within which difficulties can be discussed in a climate of mutuality and respect. Staff members with the Family Matters Project at Cornell University have recently been testing a three-pronged strategy for fostering prevention-oriented home-school partnerships. Called Cooperative Communication between Home and School (Dean, 1983), the approach is aimed in equal measure at teachers, parents, and school administrators. It includes a six-workshop series for parents and a two-day in-service training program for teachers and principals, as well as a special monograph for principals, school superintendents, school board members, and others involved with the school system.[2] The parent workshop series is a modified version of what we used with Syracuse parents as part of the original Family Matters program. The teacher materials have now been tested in a number of different school systems, and in every instance we are struck by two realities. First, most teachers have a very narrow conception of what the wide variety of American families looks like and needs, and second, every school system contains built-in barriers to effective home-school communications that can be altered without weakening the educational program. A comprehensive, systems-oriented approach like the one developed at Cornell could, if made available to all the constituencies involved with a particular school, dramatically increase positive, cooperative communications, and in so doing create a climate supportive of whatever problem-solving needed to take place.[3]

8.9.2 The School as Support for Family Life

The establishment of positive, mutually supportive communications between home and school is, however challenging, only one step in the process of designing a school environment that is truly supportive of family life. The second challenge issued by the findings of this research involves identifying and implementing a full-scale plan for supporting the efforts of families on behalf of their children's education. Presumptuous as that may at first sound, the process need not be very disruptive either to schools or to families, and the clues to its implementation can be found right in the model components included in Figure 7.5. The model shown there is not static. We conceive of it as a process through which parents move in their own development, which in turn has consequences for the development of their children. Our own data have led us to hypothesize with growing confidence that parents with positive and realistic views of their capacities as parents are likely to make good use of available social supports and place high priority on activities with their children. This combination of positive forces seems to be manifested generally in more success by the children in school, or at least to protect the children somewhat from the negative effects of high environmental stress on school performance. The challenge becomes, then, to find in our local communities more ways in which to stimulate this "empowering" process in parents. We believe that the primary school can be a facilitating force in this regard without major alteration of its basic educational mission. Specific attention to four components in Figure 7.5 provides some helpful reference points. First, school personnel can strengthen parents' appreciation for the importance of the parenting role by referring to that role in positive terms at every opportunity. We have already addressed at length the importance of establishing communication patterns that are positive and preventive rather than negative and remedial. Second, individual primary schools can facilitate the strengthening of informal social supports to parents by acknowledging the fact that parents from different families meet and become friends with each other partly because their children meet in school and become friends. Simple things can make this process easier: a clearly written list of the children's names, addresses, and telephone numbers sent home to each family at the beginning of the year; a time early in the fall when parents are invited to meet the teacher and each other over refreshments (possibly sponsored by the PTO). These are examples of ways in which friendships can be formed, and supports built, with just a little help from the school. A third way to stimulate the parental empowerment process is by providing parents with information, and possibly even materials, that help them engage in the kinds of activities with their children at home that complement and reinforce what is being taught at school. A "parent-child workbook" could become a real source of pride for both parent(s) and child while underscoring the educational goals of the teacher. Empowerment will only result, however, from acknowledging and making clear to the parents that they are valuable allies to the educational process, with a great deal to offer it. A full-scale plan for supporting the efforts of families then, is one that helps parents attach more importance to their parental roles, contributes to the process of introducing families to each other through their children, and actively promotes constructive parent-child activities. Such a plan is feasible, requires very few additional resources, and would generate a solid base of parental support for schools implementing it.

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[2] Available as a single module, at a cost of $30.00, by writing to Cornell University Distribution Center, 7 Research Park, Ithaca, New York 14850.

[3] And the introduction of such an approach should not be undertaken in a vacuum. Good baseline documentation of preexisting types and levels of home-school communication should be undertaken in advance, to provide a starting point against which future progress can be measured.

8.9.3 Higher Education as Support for Families

Earlier in the chapter, evidence was presented to indicate that the status of parents was enhanced along a number of our empowerment dimensions simply by remaining in the educational mainstream beyond high school. Mothers with more than a high school education reported more positive feelings about themselves and their children, involvement with a larger and more diversified social network, and participation in more activities with their children. Our data also indicate that their children perform with greater success in first grade. Thus public policies that lead to the involvement of greater numbers of prospective parents (and those already parents) in postsecondary educational experiences would also appear to have high potential for strengthening family life.

Why should this be the case? What is it about continuing in school beyond the 12th grade that could lead to positive consequences for various aspects of the parenting role? While there is currently no definitive answer to such a question, we are able to provide some informed judgment on the matter. Beginning with what we view as the starting-point in the empowerment process, it is reasonable to assume that additional educational increases a person's belief in his or her personal capacities and skills. Status is conferred upon those with higher education, and with it personal strength emanating from public recognition. Along with recognition, and the associated personal efficacy, comes increased eligibility for higher paying, more interesting jobs. Higher pay means greater access to material supports for family life, like decent housing, adequate food and clothing, and reliable transportation.

The years spent in college or other advanced training after high school take the young adult beyond the circle of friends and relatives defined by kinship and the local community, to meet and become friends with people who may be "different" along a number of dimensions: ethnic, religious, racial, political, regional, cultural. Our own data and those of other network researchers (Fischer, 1982) indicate that personal networks grow as a consequence of this exposure. Such growth can translate into added support for the parenting role. One advantage to such support is the diversity in membership it is likely to provide. Friends from different backgrounds can provide a broader range of strategies for childrearing and family relations than could come from relatives or more "local" friends. Such friends also represent links to opportunities located beyond the experience of relatives and the local community: housing opportunities and jobs as well as information and ideas (Granovetter, 1973).

Higher education is likely to demand and provide opportunities for more independent use of available resources and the development of more sophisticated managerial skills than did primary or secondary school. Increasingly, parents are required by their environs to find resources, make choices, and exercise independent judgments for and on behalf of their children (Keniston, 1977; Grubb and Lazerson, 1982). So, again, skills emphasized in higher education prove transferable to family life. Finally, there is good reason to believe that educational achievements beyond high school generate in parents a set of raised aspirations for their children. Such aspirations are in part "education-specific"; they translate into energy devoted to ensuring that the child take schooling seriously and perform successfully in the classroom. This energy may be reflected in extra attention at home to the child's school work, or to involvement with school practices and policies, or to the provision of special educational opportunities through the private sector. All such efforts are the product of the empowerment process. They have their analogues in the workplace and in the politics of participatory democracy. The message to the education establishment is this: educational experiences beyond high school provide young adults with skills and opportunities that benefit family life in many positive ways. Thus we close with a challenge that the search for the testing and implementation of ways to make higher education available to greater numbers of Americans be intensified. The results of such an effort ripple rewardingly throughout society, not least through families.

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